CONVENTION NUMBER

# TEXTILE WORLD RECORD

**MAY, 1915**

## *SPECIAL FEATURES*

*The American Cotton Manufacturers Convention at Memphis*

*The National Association of Cotton Manufacturers Annual Meeting at Boston*

*The National Association of Hosiery and Underwear Manufacturers Meeting and Machinery Exhibition at Philadelphia*

LIBRARY OF CONGRESS MAY 20 1913 PERIODICAL

LORD & NAGLE COMPANY, Boston, Mass.

# The TEXTILE-FINISHING MACHINERY CO.

**Howard Building, Providence, R. I.**

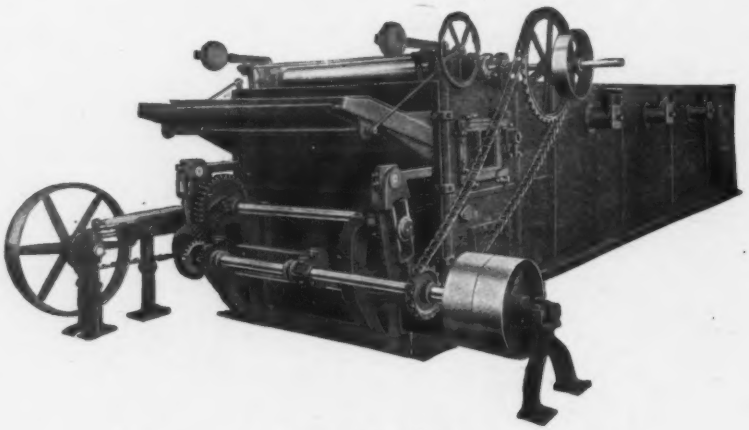
BUILDERS OF

## Singeing, Bleaching, Mercerizing, Dyeing, Drying, Printing and Finishing Machinery

FOR

## TEXTILE FABRICS AND WARPS

**Plans and Estimates for Complete Plants**



**Top Section of Patent Continuous Steamer**

## Agers of All Kinds

PATENT CONTINUOUS STEAMERS
COTTAGE STEAMERS
FOR
PIECE GOODS AND YARN

## Warp and Skein Mercerizing Machinery

# Bleaching, Drying, Dyeing

and

# Finishing Machinery

# *For Textile Fabrics*

**Bleach House**
Machinery of All Kinds

**Drying Machines**
(Copper and Tinned Steel Cylinders)

**Singeing Machines**
(Oil and Gas)

**Color Kettles**
with Stirrers

**Open Soaping**
Machines

**Calenders**
For all Purposes

**Mercerizing Ranges**
(Piece and Warp)

**High Speed Tentering Machines**
for elastic finish with Automatic Clamps

**Return Tentering Machines**
for Woolen Goods

**Hydraulic Presses**

**Dye House**
Machinery of All Kinds

**We are also sole Licensees and Makers in the United States for Daniel Foxwell & Sons, Manchester, England, of the**

KAY & FOXWELL'S Patent Pneumatic Guider and Feeder

*Simpson Patent Cloth Winder, No Stopping to Change Rolls, — Increased Production*

# H. W. Butterworth & Sons Co.

Providence Office
1212 TURKS HEAD BUILDING

PHILADELPHIA, PA.

# THE BEST

## NORTHROP
Trade Mark Registered
## LOOM
## BOBBINS
AND
## SHUTTLES

ARE MADE BY

## Northrop Loom Manufacturers

Look for our name on your Bobbins and Shuttles

## Draper Company
HOPEDALE MASS.

J. D. CLOUDMAN Southern Agent 188 So. Forsyth St. Atlanta Ga.

# Northrop Looms

Trade Mark Registered

Increase product per loom

Increase wages per weaver

Reduce cost of weaving per yard

Pay for themselves in five years or less

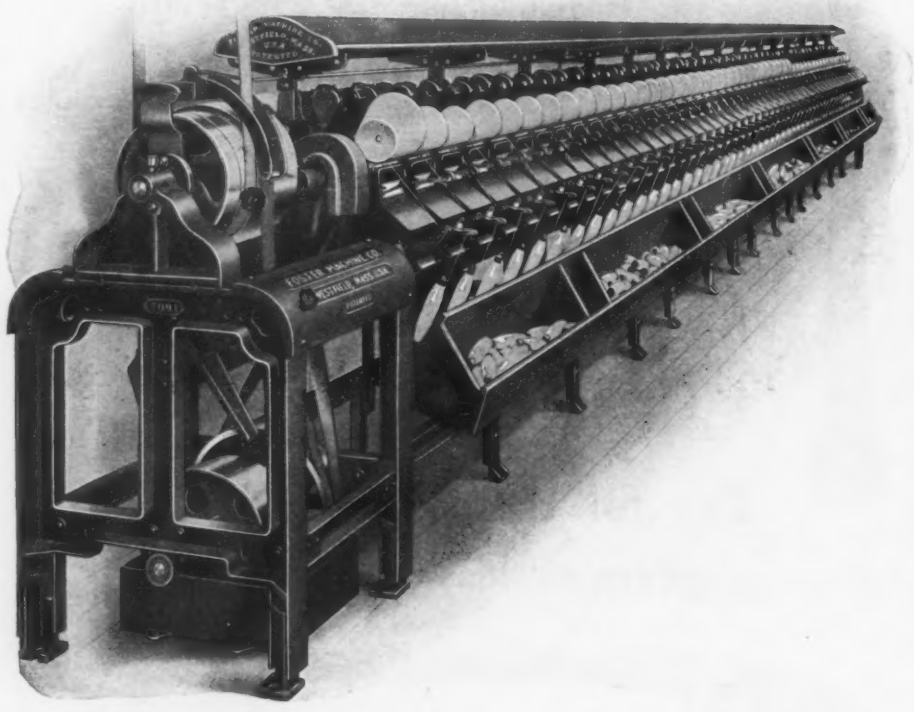
Can You Afford to Do without them?

## Draper Company

**Hopedale Mass.**

J. D. Cloudman Southern Agent 188 So. Forsyth St. Atlanta Ga.

# The Foster Model 30



The Model 30 Cone Winder has every good principle of former Models incorporated in it. In addition, the new Model is more flexible of adjustment and may be set to produce finished cones of much greater taper than former Models, although paper cones of the same or lesser pitch are used.

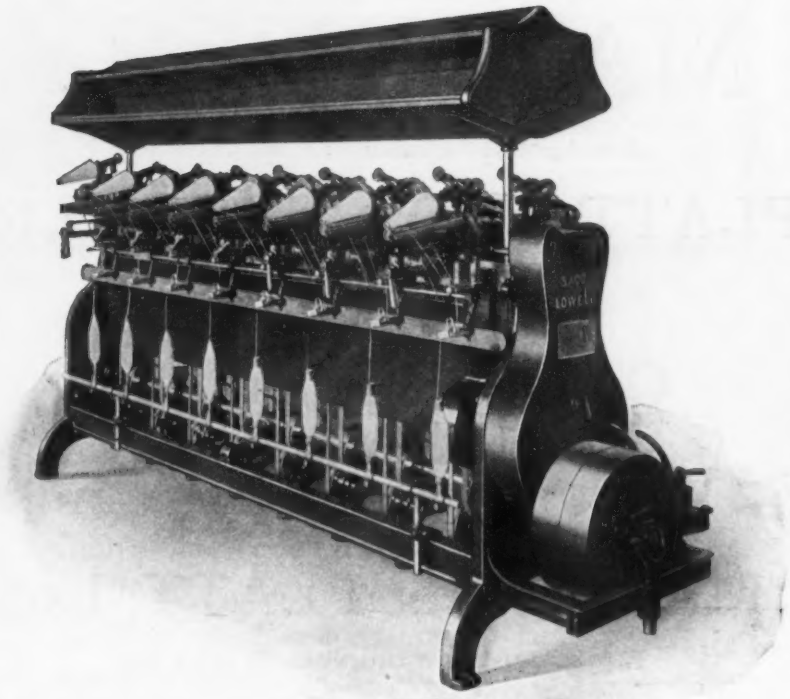
## Foster Machine Company

**Westfield, Massachusetts**

**JOHN HILL, Southern Agent, 1014 Healey Bldg., Atlanta, Ga.**

# Saco-Lowell Shops

## TEXTILE MACHINERY



**Camless Cone Winder**

Effects saving in cost of repairs and operating expenses.
Increases capacity of operative,—decreases cost of winding per pound.
Duplicate work from every spindle positive.
Compact construction and large product per spindle insures appreciable saving in floor space and lessens first cost of installation.

**Executive Offices:—77 Franklin St., Boston, Mass.**

**Southern Agent:—Rogers W. Davis, Charlotte, N. C.**

# LEIGH & BUTLER

IMPORTING ENGINEERS

232 Summer Street, Boston, Mass, U. S. A.

Long Distance Telephone—
Main 2693

Cable Address—
"Leigh," Boston

# TEXTILE MACHINERY

Sole Agents in the United States and Canada for

## PLATT BROS. & CO., Ltd.

OF OLDHAM, ENGLAND

By far the Largest Makers in the World of

## Cotton, Woolen and Worsted Machinery

Also Sole Agents in U. S. and Canada for

## MATHER & PLATT, Ltd.

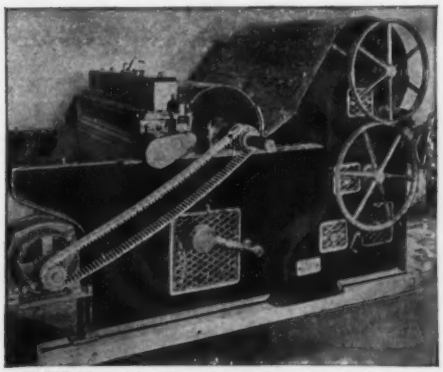
**Equipment of Complete Works for**

BLEACHING, CALICO PRINTING, DYEING AND FINISHING

**Patent Mechanical FILTERS for Town Supplies and all Industrial Purposes**

Wool Washing and Drying Machines, Napping Machines, Sykes' Card Clothing for Cotton, Critchley's Card Clothing for Woolen and Worsted, Wilson Bros'. Bobbins, etc., Harding's Pins, Fallers and Circles, Dronsfield's Grinding Machinery and Emery Fillet; Double Loop Bands, Scroll Banding etc.; Condenser and Gill Box Aprons, etc.

# MORSE Silent Chains



5 HP. Morse Silent Chain Driving Picker. S. O. 10226

***For Textile Machinery of all kinds***

MORSE Silent Chains are the ideal drive for textile machinery of all kinds,—silent in action, highest in efficiency, durable, and reliable at all times and in all locations.

Flexible like belting, yet positive like gearing. Space savers, because the shortest centers are permissible without loss of efficiency. Production boosters because of their 99% sustained efficiency.

## Logic

***WE could not have lived through twenty years of competition with a product only different from all others.***

***Being the one different chain, the MORSE Silent Chain had to be better at first, and, we maintain that distinction today.***

**Morse Chain Company, Ithaca, N.Y.**

NEW YORK, 50 Church St. BOSTON, 141 Milk St. CHICAGO, Merchants L. & T. Bldg. PITTSBURGH, Westinghouse Bldg. CLEVELAND, 421 Engineers' Building. DETROIT, 735 Dime Bank Building. SAN FRANCISCO, Monadnock Building. ST. LOUIS, Morse Engineering Company, Chemical Building. MINNEAPOLIS, Strong-Scott Mfg. Co., 413 Third Street, S. ATLANTA, Earl F. Scott, M. E., 709 Candler Building.

I would like to receive literature descriptive of MORSE Silent Chains and information regarding their advantages in connection with.....

.....

Name.....

Company.....

Address.....M-73

# COTTON MILL MACHINERY

Carding Spinning

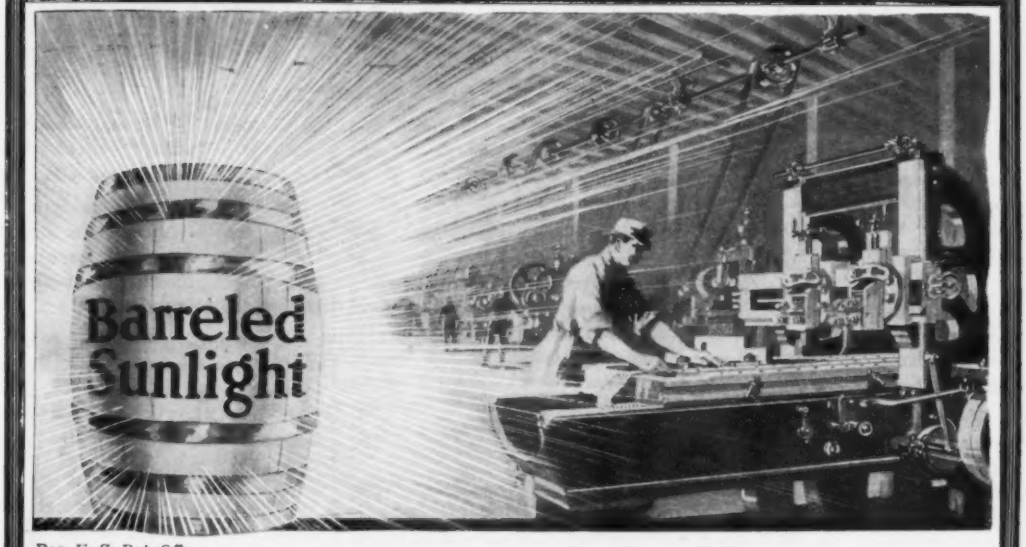
MASON MACHINE WORKS

Drawing Weaving

Executive Office, 77 Franklin Street, Boston, Mass.
Arthur R. Sharp, Treas.; Thomas G. Cox, Agent

Southern Office, Greenville, S. C., Edwin Howard

Works at Taunton, Mass.




*Reg. U. S. Pat. Off.*

# Easily the most economical finish for ceilings and walls

You want to increase your daylight in your plant; but why put a gloss paint on ceilings and walls, which is liable to crack and peel off, turn yellow and soon need re-painting? That is what may happen, if you use an imitation "mill white," instead of the original —Rice's Gloss Mill White.

Rice's is an OIL paint. It is not a cold water paint **but can be applied over old cold water paint.** It is made by a special process discovered by and known only to us. The imitations of it are all varnish paints. They may may look as white as Rice's when ***first*** put on, but their inferiority is soon evident. Your ceilings and walls are liable to crack and peel and look as if they were covered with a yellow paint.

Rice's is used by an ever-increasing number of the biggest textile mills in the country; its superiority over others is so marked that we protect those who buy it with the following guarantee:

WE GUARANTEE that if Rice's does not remain white longer than any other gloss paint, applied at the same time and under the same conditions, **we will give, free, enough Rice's to repaint the job with one coat.** We also guarantee that, properly applied, Rice's will not flake nor scale. You cannot lose under this guarantee.

***Write for testimonials from textile mills, and for our booklet, "The Yellow Peril"***

**On concrete surfaces**

On inside concrete, Rice's Granolith makes the best possible primer for a second coat of Rice's Gloss Mill-White—giving a tile-like enamel finish at no more expense than lead and oil paint.

**Rice's Granolith**

# RICE'S GLOSS MILL-WHITE

**U. S. GUTTA PERCHA PAINT CO.**
**20 Dudley Street, Providence, R. I.**

**Sold direct from factory**

Sold direct from our factory in barrels containing sufficient paint to cover 20,000 square feet - one coat.

# Parks' Piping Parables

Ever since he shed his primeval tail, man's progress has been through standardization. And according to what the standards were has evolution decided what rung in the social ladder the several races should occupy.

The Zulus have standards, but they are not the standards of the people of North America. Hence the difference.

Mechanically the last quarter of the nineteenth century and these fifteen years in the twentieth have shown the most marked advance in standardization.

The English speaking races have more in common than their language. Standardization and engineering brings together all who delve in things mechanical.

A horse-power means the same and is reckoned in the same way in Australia as in Wales.

Someday I look to see this matter of standardization carried still further. I look to see all the big mechanical and commercial nations dealing in the same terms of money —of weights and measures—of mechanical units.

I wonder how many of you American manufacturers realize how much you are indebted to engineers for the adopting of fixed standards and sizes in so staple a line as piping.

Think of it. You can buy pipe made in Pittsburg, fittings made in Boston, Providence, Bridgeport, Greensburg, Pa., or Chicago; valves in Hartford, Springfield, Philadelphia or Cincinnati, and they will fit. You can use them with all reasonable assurance that the thread of one will match that of the other.

Think of the trouble if each pipe mill set its own standard for pipe sizes and each manufacturer of fittings his own standard for fittings.

I wonder if you know that comparatively recently and because of initiative on the part of steamfitters, the manufacturers of fittings have adopted uniform dimensions for flanged fittings—so that a flanged fitting made in Chicago will, insofar as dimensions go, be an exact duplicate of a flanged fitting made in Boston.

Throughout the length and breadth of this whole United States —and Canada, too—and Cuba and Mexico—and I don't know how far in South America, you will find pipe and fittings tapped to the Briggs standard.

In ordering fittings and valves and accessories to fit your pipe, you just mention by the commercial name and size. The thought of standard does not concern you. It has already been fixed.

That is why you buy piping cheaper and better than would otherwise be possible.

Some years ago—there was a concern in southern New England that held the delusion that by fixing its own standards of tapping fittings, its repair work would support them. They did piping work with a special thread and a special fitting. Occasionally we would run across this work.

But now? It is never seen for the concern is dead and the delusion was a snare that trapped them to an untimely end.

Some complain that the day of the old fashioned machinist has passed; that the present machine shop practice with its automatic machinery doesn't produce the mechanic of fifty years ago.

Well, he was a splendid type of man; resourceful because he had to be. Of standardization there was little—and he built no two machines quite alike.

A new order of things made that old type of mechanic not quite so necessary, but in his place, his grandson displays the same resourcefullness on a drawing board.

Which is better?

I remember when our draughting room was a corner in the office with a drawing board and a T square, where anyone could take a hack at it.

Now our draughting and engineering room sort of takes precedence in the whole shooting match, and, while I sometimes sigh when I sign the pay-roll check, its importance is growing apace.

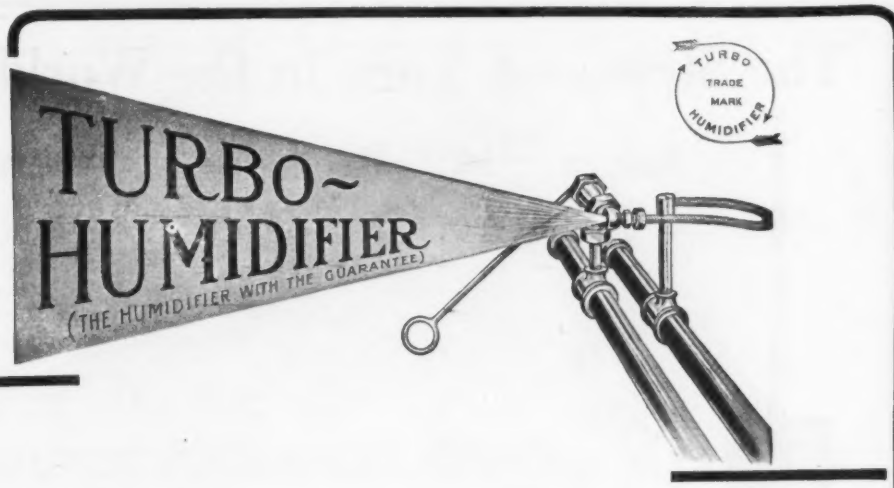
For it is creating standards; standards that we didn't know existed in the piping business.

A moment ago I was in in consultation with several of the sales force, and one of our salesmen showed me a chart that the engineering end had devised to make the results of a prospective coal saving job clear to the customer.

The total steam now used was plotted; and another chart showing where exhaust could be employed was noted along-side. It reminded me of spectrum analysis in the old chemical laboratory days. But the saving of two tons and a half of coal daily was as clear as the nose on my face—wonderfully apparent. We got that job.

PARKO

The G. M. Parks Company, Fitchburg, Massachusetts




# Up Keep Cost

***The following excerpts from letters sent by satisfied Turbo Humidifier users form an uplifting up keep record—***

"The Turbo Humidifiers are taken care of by the second hand and third hand in that department. There is no extra expense, and we have no account of the labor."

"We have not kept a very close record of the cost; we are sure that it is small and the system has proven very satisfactory."

"This has been so little that we have not kept any separate account of it."

"I should say that the cost was so small that you could hardly compute it as we have done little or no work on it during the past nine months."

"The repairs, thus far, have been almost nothing. We have a new contract with you for a new and larger system which is proof of our satisfaction of same."

"We have no record of the actual labor, cost of maintenance, but the expense is very small, as the system requires very little attention and that by an inexpensive man."

"It has never caused us any trouble or expense from the time you put it in up to the present time."

"At both mills where we have the Turbo-Humidifiers, men formerly employed by us are taking care of these as well as doing their regular work, without any additional cost."

"The labor cost of keeping our Turbo-Humidifier systems in operation is too small to estimate."

"The expense for the twelve months that we have been in operation has been so near nothing that we have not considered it at all."

"We can truthfully say that your Turbos have given us good service with very little trouble and expense."

"The cost has been merely a trifle up to date, and hardly worth taking note of."

"I have gone into the matter with my Superintendent, and he tells me that the total expenses to which we have been to keep up our system of approximately fifty heads, has not exceeded one-half a dollar."

"We are not in a position to state just what it has cost us; however, will state that very little time is required."

**We can show the originals of these letters. If you think of installing humidifiers or air cleaning, write for one of our engineers to call. It will not obligate you in any way.**

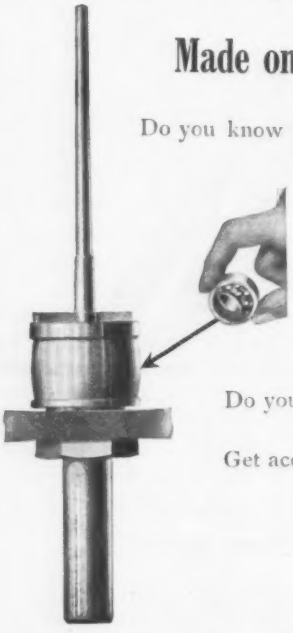
**The G. M. Parks Company**

**Fitchburg, Mass.**

**Southern Office, 200 Commercial Bank Building, Charlotte, N. C.** **J. S. COTHRAN, Mgr.**

# The Strongest Yarn in the World —

## Made on SKF Ball Bearing Twister Spindles



Do you know that the strongest yarn in the world is produced on S.K.F. Ball Bearing twister spindles?

Do you know that they have been running over three years with perfect success? This demonstrates that even in the most severe service S.K.F. Ball Bearing Spindles "stand up."

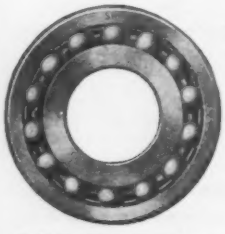
Do you know that not one adjustment or replacement has ever been made on these S.K.F. Twister Spindles?

Do you know that these ball bearing twisters give the correct twist to the yarn? No further cause for "slack" yarn.

Do you know these Ball Bearing Twisters save power, oil and increase production?

Get acquainted with THE ball bearing spindle that will enable you to

(a) Save 15 to 25% in power.
(b) Save oil (only necessary to oil spindles once in three months).
(c) Save frictional heat.
(d) Save spindle wear—(no repairs).
(e) Produce *stronger yarn*.
(f) Produce *more uniform yarn*.
(g) Produce *more yarn*.



S.K.F. Ball Bearing

The reason for the success with S.K.F. Ball Bearing Spindles is two-fold—

1st. The ball bearing is made right.
2nd. The ball bearing is applied right.

*Spindle manufacturers* who have had years of experience, *make* these spindles. Their reputation is back of them. We import the ball bearings from our factory in Sweden, the spindle manufacturers apply them correctly and the mills gain the success.

This means S.K.F. Ball Bearings are being successfully used on Spinning and Twister Frames. To get them on your frames, specify—"Spindles and cylinders to be equipped with S.K.F. Self Aligning Ball Bearings."

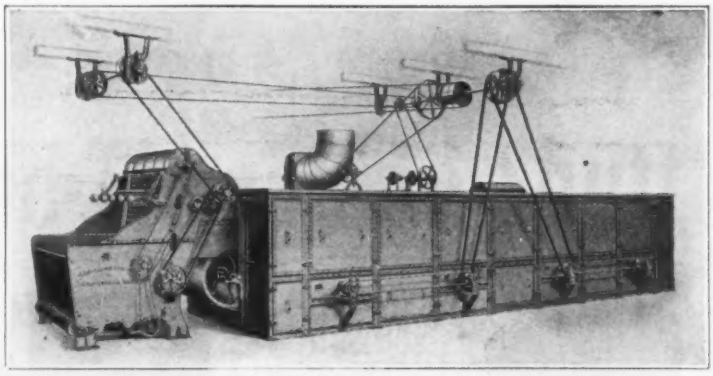
In Deflected Position

With the S.K.F. Ball Bearing Spindle, the blade can be taken out to be cleaned, (same as in an ordinary spindle).

Want further information?
Write us, or write to your machinery manufacturer for S.K.F. prices.

**SKF BALL BEARING CO.**

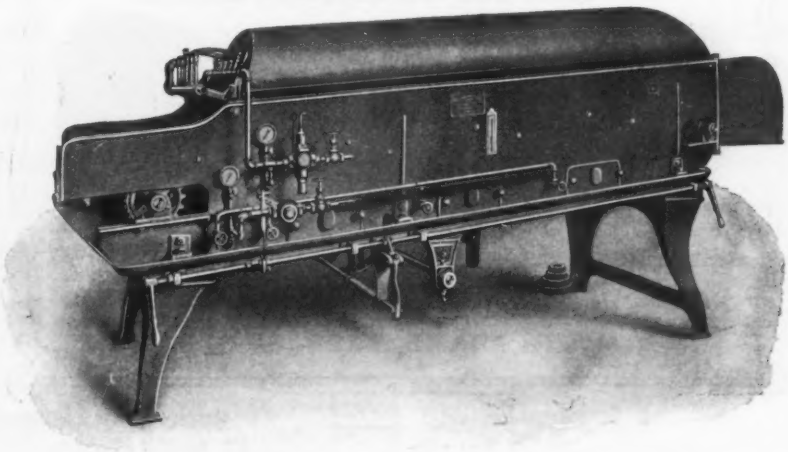
**50 Church Street** **New York City**



# Sargent Automatic Drying Machines

**For Drying Wool, Cotton, Hair, Silk, Flax**

Containing exclusive features which permit greatest economy in operation. Ball Bearing Fans. Improved principle air circulation. Specially designed Feeders Automatic Apron Adjusting Device



# The Yarn Conditioning Machine

The most effective and systematic method of setting twist
Eliminates Kinky Yarn difficulties

**Wool Washers, Wool Dusters and Openers**
**Burr Pickers, Automatic Feeds for Cotton and Wool**
**Complete Carbonizing Plants**

## C. G. Sargent's Sons Corp., Graniteville, Mass.

The Hunter

NO. 10
FULLING
MILL

DRIVING SIDE

GEAR DRIVE

CLOTH WASHERS

PEICE DYE
KETTLES

SOAPING
MACHINES

BELT DRIVE

ROPE DRIVE

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS., U. S. A.

OUR NEW

# Hand-Threading Shuttle

## Is the Simplest—Most Effective and Most Quickly Threaded Shuttle Made

NOTE THESE POINTS:

¶ Can be operated with the finest silk or the coarsest filling.

¶ Will neither unthread nor "balloon."

¶ Provision is made for easy removal of lint that may accumulate in the threading device.

¶ There is room for the insertion of felt for tension purposes.

¶ It complies with the Massachusetts sanitary shuttle law, and as other states are likely to enact similar laws, it is well to anticipate trouble by adopting this new shuttle.

***Trial orders solicited.—Satisfaction guaranteed.***

**Paper Cop Tubes**
**Cones and Shells**
Send your samples and we will quote prices on any lot desired

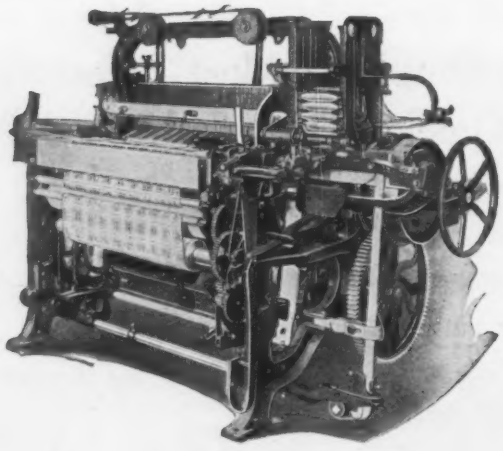
**Shuttles and**
**Shuttle Irons**
For All Textile Purposes

**American Textile Specialty Machinery Co.**

670 Eddy Street - Providence, R. I.

13th Street and Boulevard, Long Island City

# Crompton & Knowles Loom Works



## Automatic Gingham Looms

One of our latest productions for weaving goods of two or more colors in the filling. Like every loom we build, it has the advantage of a successful mill test.

**WORCESTER, MASS.**

**Providence, R. I.** **Philadelphia, Pa.**

**Southern representative, ALEXANDER & GARSED, Charlotte, N. C.**

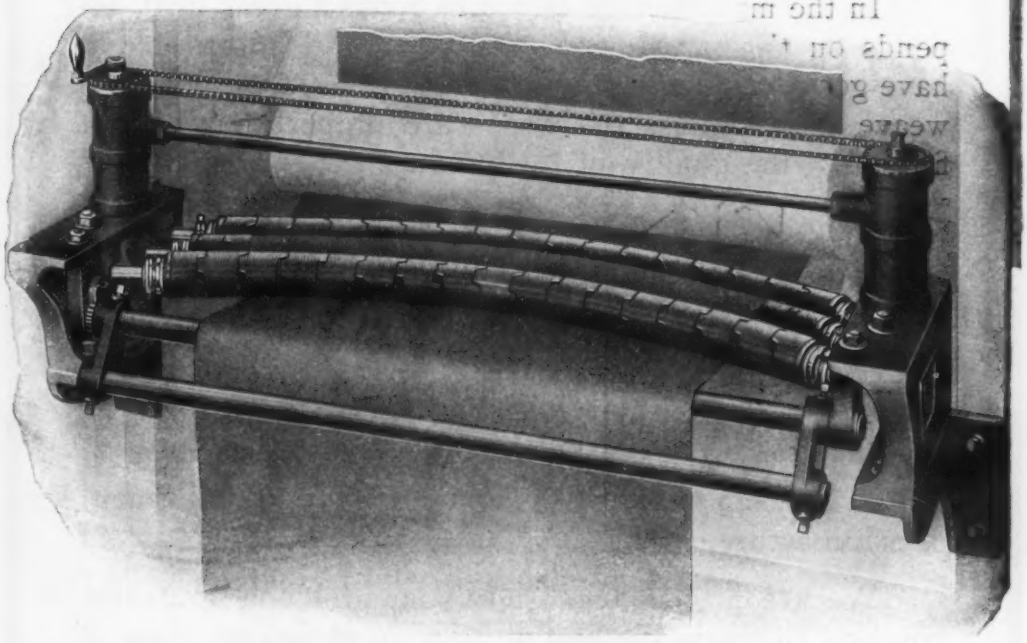
# THOMAS LEYLAND & COMPANY

F. T. Walsh, Manager

60 India Street, Boston, Mass. WORKS AT READVILLE, MASS.

Sole Manufacturers of THE WILLIAM MYCOCK

## Improved Regulating Cloth Expander



Expander attached to Calender showing Regulating Motion and Adjustable Tension Bars

This Expander and its improved features are fully protected by basic United States patents, and by others still pending, under which the builders will maintain their patent rights against any who may violate such rights by building, selling or using machines of this character.

*We solicit correspondence from those having new ideas for Calico Printing, Dyeing, or Bleaching Machinery, either patented, or capable of being patented, and which they wish developed or manufactured.*

Scutchers, Sewing Machines, Open Bleaching Machines, Blanket Washers for Calico Printers, Guides, Etc.

# Starch

## TEXTILE STARCHES

In the manufacture of cotton goods a great deal depends on the proper use of starch. It is impossible to have good weaving and obtain high production from the weave shed unless the warps are properly sized. In finishing, the quality of the product depends upon the starch.

Realizing the importance of the proper use of starch we have made a scientific study of the use of starch, both by laboratory research and practical tests in the mills. As the result of this work we have determined what kind of starch produces the best results on different classes of goods and we are now able to offer the trade SPECIAL TEXTILE STARCHES adapted to every requirement of manufacture.

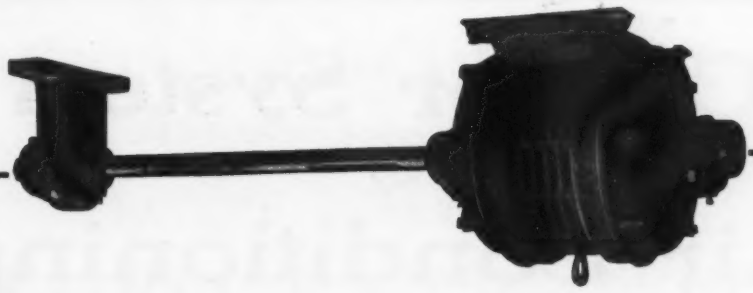
We are prepared to study your problems and show you how to obtain the best results on the same class of goods you are making, and also how to produce these results economically giving you the best value for the money invested.

For information address

Corn Products Refining Company

17 Battery Place, New York, N. Y.

Starch



# Westinghouse Electric CS Motors

## *Win Again!*

The Cone Interests controlling large mills in North Carolina recently purchased nearly 2500 horse-power in type CS motors for their new 40,000-spindle addition to the Revolution Cotton Mills.

The superior design and construction of the

***Westinghouse Steel Type Motor***

and its adaptability to textile service make it

***A Consistent Winner***

In a number of the recent large motor installations in the textile industry the type CS motor was selected for its superiority.

***Send for full information***

## Westinghouse Electric & Mfg. Co.

**EAST PITTSBURGH, PA.**

BOSTON
Boston Safe Deposit and Trust Building

NEW YORK
165 Broadway

PHILADELPHIA
North American Building

CHARLOTTE
American Building

ATLANTA: Candler Building

# Cramer System
## of
# Air Conditioning

Cramer "High Duty" Air Conditioner

Cramer Automatic Regulator

# FACTS

In several large mills equipped with humidifiers of other makes, we have entirely reorganized their system, installing our "High Duty" equipment with automatic humidity and temperature control and the average improvement during the succeeding twelve months test is:

*A—Seconds reduced over 50%.*
*B—Production uniform day after day (No big jumps.)*
*C—Actual waste account halved.*
*D—Large saving in "invisible waste."*

**What Would Similar Results Be Worth To You?**

## STUART W. CRAMER

50 Church St. New York — Charlotte, N. C. — Tremont Bldg. Boston, Mass.

# WATSON, LAIDLAW & CO. LD.

**DUNDAS ST. SOUTH, GLASGOW**

PATENT WATER-DRIVEN

# HYDRO-EXTRACTOR

**Underdriven Baskets**

24 in. Diameter to 48 in.

**Suspended Baskets**

30 in. Diameter to 84 in.

Retain the benefit of self-balancing with entire absence of belts and gearing. No working parts requiring lubrication except spindle, which only requires a little grease once or twice a year. Can be placed anywhere regardless of power or moisture.

*ABSOLUTELY SAFE*

CALL OR ADDRESS

## W. J. WAYTE INCORPORATED

ONE LIBERTY STREET, NEW YORK

**Pacific Coast Agents, - - BOURRET & KIRKWOOD, Seattle, Wash.**

# LANE

# Canvas Mill Trucks
## Baskets and Boxes

FIG. 27
**The Lane Truck.**
Mounted on Stationary Frame, Thread-guard Casters, as shown, or on Swivel Casters, if desired.

**Altho' Withstanding the *Roughest Handling***

ARE THEMSELVES

**Absolutely *Without Roughness.***

**Thus They Reduce:**

# Cost, Waste, Damage

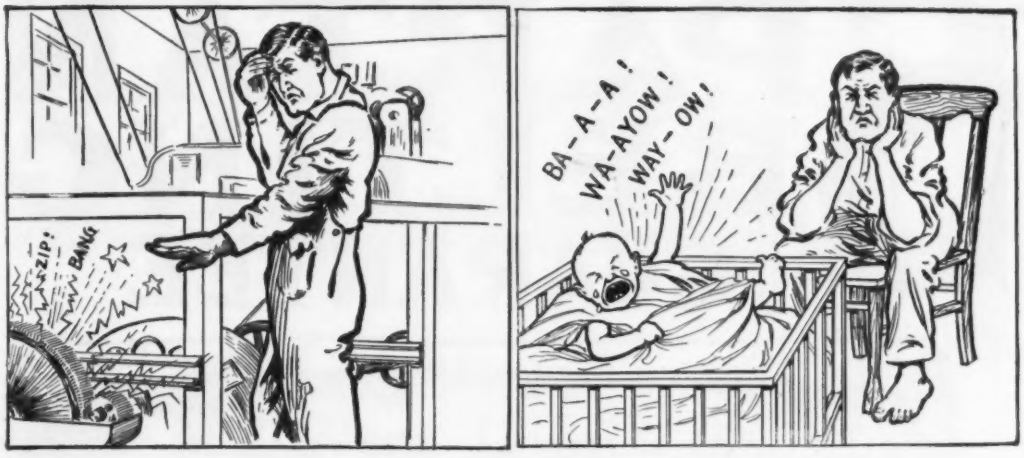
**And They Are Light in Weight, Too**

---

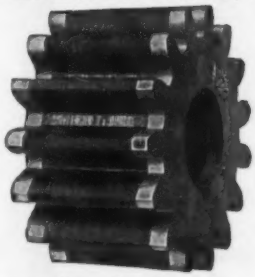
*A STYLE FOR EVERY USE*

# W. T. LANE & BRO., Mfrs.

POUGHKEEPSIE, N. Y.




# NOISY METAL-TO-METAL GEARS DURING THE DAY will get your nerves just as surely as will NOISY RELATIVES OR NEIGHBORS AT NIGHT



The latter condition isn't always preventable, the former *is*.

There's no excuse on earth for letting a lot of noisy metal-to-metal gear drives dim your foreman's voice or your operatives hearing—no reason in depressing the mental capacity of every one in range—for-inviting mistakes, headaches and general bad feeling.

## NEW PROCESS NOISELESS PINIONS

not only quiet the noisy drives and give every man better oportunity to concentrate his mind on useful work, but cushion vibration, protect the intermeshing gears, and in many more ways are a source of profit.

New Process are the only quiet pinions that stand up like metal in severe service. In fact, instances brought to our attention show these pinions to have actually outlasted the metal gears with which they meshed.

Reading of our book, "Noiseless Gear Driving" would convince you as to how and why New Process Pinions would add to health, business convenience and profits in *your own* shop.

Ask for a copy

NEW PROCESS IS TO ALL OTHER RAWHIDE AS STEEL IS TO IRON

# NEW PROCESS GEAR CORPORATION

SYRACUSE, N.Y.

*Canadian Agents: Robert Gardner & Son, Ltd., Montreal*

104

# SPARTAN BELTING GUARANTEE

*"We guarantee that Spartan Belting will withstand exposure to either hot or cold air, water-steam-oil-gases-and heat generated by excessive pulley friction:*

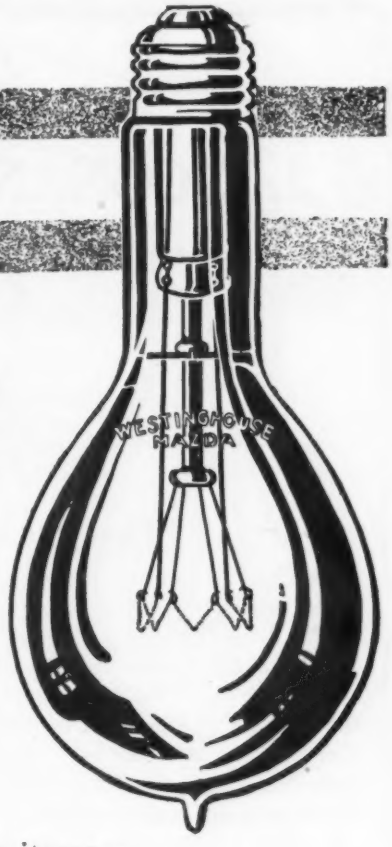
*That owing to its unusual pliability it will grip the pulley better-run with less tension and reduce the friction load:*

*That under proper mechanical conditions it will transmit power with greater economy than any other material in use, thereby reducing the cost of power transmission:*

*That it will, when used under the same conditions outwear any other belting material, saving loss of time and cost of replacement.*

*We, further, guarantee that if any Belt should prove defective by reason of fault in material or workmanship, we will furnish a new belt, or repair the defective part."*

**GRATON & KNIGHT**
**M'F'G. CO.**
**WORCESTER MASS.**




# The Cost of Lighting in Your Mill Went Down on April 1st—

WESTINGHOUSE
MAZDA
*The Lamp for Industrial Lighting*

YOUR lighting cost is made up of three items—lamps, current and maintenance. On April 1st the prices of Mazda lamps were reduced from 10% on some sizes to 25% on others. Not only does this reduce the lamp item in your lighting cost but it makes it easier for you to use large efficient Mazda C lamps and reduce both the current and maintenance costs.

*Send for our catalog giving the new low prices*

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WESTINGHOUSE MAZDA LAMPS

***It Pays to Use Mazda Lamps Labelled Westinghouse***

THE 124th YEAR

UNDER THE MANAGEMENT OF

# J. E. CONANT & CO., (Auctioneers)

OF LOWELL, MASSACHUSETTS

*Means:—*

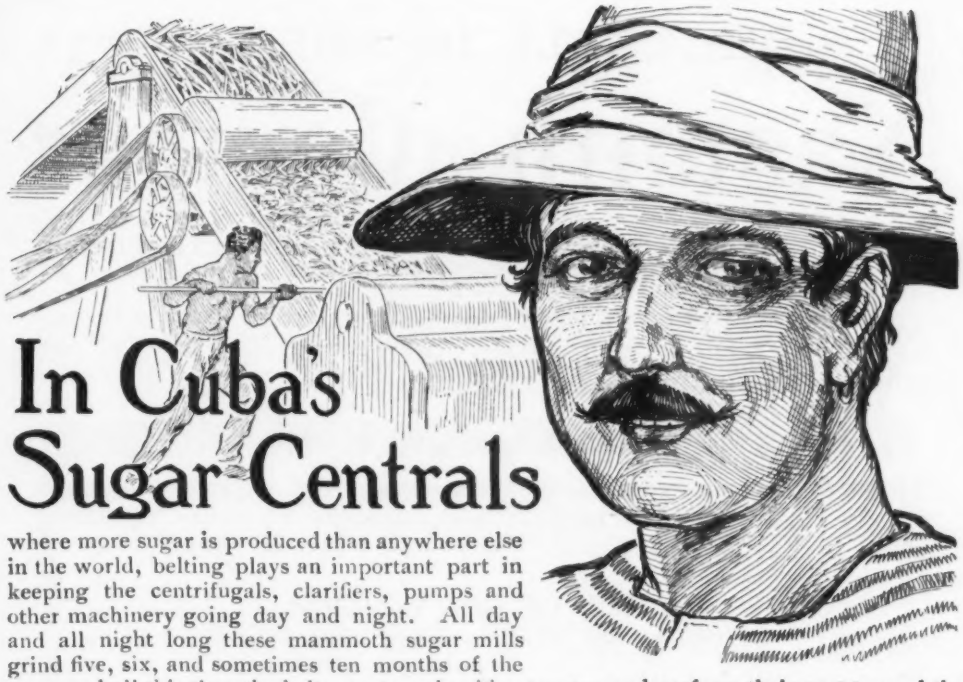
## "That the property will be SOLD"

THAT a property will be systematically prepared for market; that its sale will be given broad publicity; that all its possibilities will be searched out and made known; that it will be presented to prospective purchasers in an honest, straightforward and truthful manner by word, by picture, by plan, to the fullest detail—nothing will be left untold for the possible purchaser to discover and resent in his disappointment; the problem in hand will be justly solved in fairness alike to the seller and the buyer. Combinations not endured. Experience gained in the one office in the handling of manufacturing properties at public sale in every New England State; in all the Middle States except Maryland and West Virginia; in Ohio, Indiana, Kentucky and Missouri of the Central States; in North Carolina, Tennessee, Alabama and Mississippi of the Southern States—is not common to say the least. The management of the sale of some three hundred manufacturing properties—textile and industrial—large and small—has come to this office unsolicited in this century alone—realizing more than 8½ millions of dollars. In not a single instance, so far as is known, has the net result of any one of these sales been so small as the best offer at private treaty for the same property under similar conditions. A market is absolutely essential to the disposal of any property. At a bona fide public sale a market is created and a market day fixed—if the work is properly done. To pledge a manufacturing property without limit or reserve to the highest bona fide bidders at absolute auction sale attracts the manufacturer, the purchaser who buys for occupancy, the consumer or final user so to speak—but to offer the same without pledge to the highest bona fide bidders attracts only the second-hand dealer, the speculator, those who buy at a great sacrifice to hold for a profit, or the bargain hunter.

---

The business of the systematic preparation of properties for absolute auction sale and the thorough and effective advertisement of such sales has become of as much importance in the successful liquidation of large manufacturing properties as has the clearing house system to the national banks.

**Entire Transaction—From Start to Finish—Taken in Charge**



# In Cuba's Sugar Centrals

where more sugar is produced than anywhere else in the world, belting plays an important part in keeping the centrifugals, clarifiers, pumps and other machinery going day and night. All day and all night long these mammoth sugar mills grind five, six, and sometimes ten months of the year, and all this time the belts must work without a stop and perform their part toward the big things that are being done both in capacity and economy of sugar production.

The Cuban sugar planter must get his crop off in the short time given him by Nature,—while the juice is in the cane,—and he buys the belting he can depend upon absolutely. He knows DUXBAK Waterproof Leather Belting costs him more, but he also recognizes the fact that it lasts longer, requires less attention and *helps him make more sugar.*

DUXBAK will help you, too, to reduce your costs and speed up your machines. In making it we put in it a substance that permanently waterproofs and oilproofs the leather—then we cement the sections together with an adhesive that is immune to steam, acid fumes, alkalies and all other destructive agents. This treatment applied to selected hides makes a belting that is pliable and yet so strong that you can use it profitably on any drive in your plant.

Sixty days' trial will prove the value of a DUXBAK Belt to you. Ask any agent or write us for particulars.

DUXBAK BELTING TRADE MARK

Chas. A. Schieren Company ESTABLISHED 1868

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*OAK LEATHER TANNERIES - BRISTOL, TENN.*

# DUXBAK

*The Belt of Universal Use*

## A TALK ON THE

# Nasmith Comber

When you buy a NASMITH COMBER you install a perfected machine—NOT AN EXPERIMENT.

The NASMITH COMBER is guaranteed to produce as strong and clean a yarn, with any stated percentage of waste, as any other comber and

## A Very Much Larger Production

These facts have been proven frequently and recently by competitive tests under actual mill conditions in mills spinning Hosiery Yarns, Tire Fabric Yarns and Fine Counts.

*A FEW OF OUR CLAIMS:*

PRODUCTION—Larger than that of any other comber under ordinary mill conditions.

WASTE—Lower percentage for any required quality of work than with any other comber.

PIECING—Strength and evenness of yarn is directly proportional to the character of the comber piecing, and the NASMITH PIECING is superior to all others.

UPKEEP—NASMITH COMBERS require less attention and less expense for repairs, including Roll Covering and Reneedling.

NASMITH COMBERS are furnished with camless detaching motion if so desired.

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## John Hetherington & Sons, Ltd.

**MANCHESTER, ENGLAND**

## Cotton Spinning Machinery

**A. S. FULLER, Sole Agent, 35 Federal Street, Boston, Mass.**

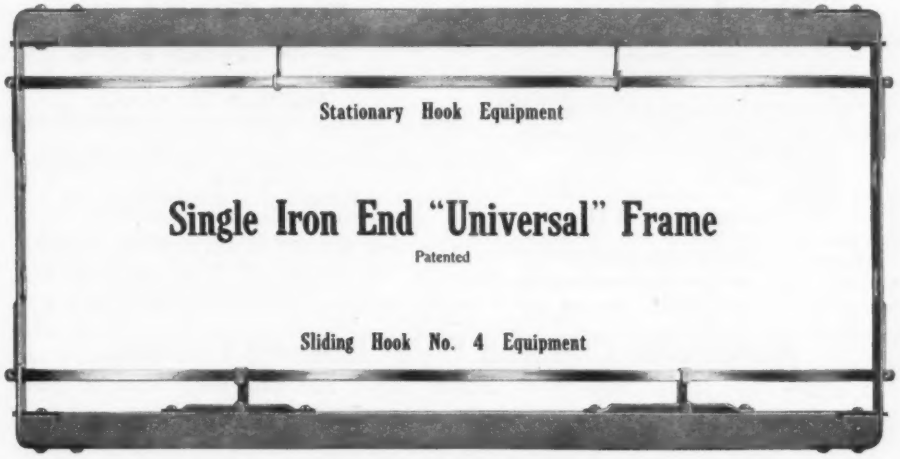
**J. H. MAYES, Southern Agent for Combers and Mules, Charlotte, N. C.**

# The Flat Steel Heddle AND Universal Frame

## Are playing today a very prominent part in the efficient running of looms

A LARGE percentage of Manufacturers realize the great importance of the Steel Heddle—the heddle punched from *flat cast steel*—with the round cornerless eye, that cannot catch, rub or chafe or pull the Warp Thread—the heddle that adjusts itself automatically on the frame—the heddle that cannot twist or bend while at work.

## THE UNIVERSAL FRAME




is used in hundreds upon hundreds of Textile Mills. Why? Because it is built for service—for efficiency—for durability. It is built for real economy—not the fake economy of an original low price. You can have the *Universal Frame* built to fit the peculiar conditions of your mill and your product.

*COTTON, SILK, WORSTED or WOOL*
*THERE IS A HEDDLE AND FRAME FOR THE WORK*

*From fancy cotton shirtings to canvas—from narrow fabrics to broad silk—from light worsteds to heavy woolen cloths, there is a heddle and frame for your particular kind of work.*

We are manufacturers of the best doup heddle the market ever produced. We are makers of the best finished drop heddles and wires you ever had in your mill.

The "Made in America" cast steel Reed Wire, which has created quite a sentation, for all kinds of Reeds, is made in our plant.

These are facts. Their efficiency has been proven so often that the novelty is lost. Do you want a list of users in your particular line? Write to these people yourself. They'll tell you what Steel Heddle Equipment has done for them.

*SEEING IS BELIEVING*

*Steel Heddle Manufacturing Company*

*2100-18 W. Allegheny Ave., Philadelphia, Pa.*
*Providence Office - - - 76 Dorrance St., Providence, R. I.*

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**170 Summer St., Boston, Mass.**

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WORSTED MACHINERY
Preparers, Gill Boxes, Drawing Boxes
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Improved Worsted Cards and Mules
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Special Machinery for Silk, Ramie, etc.

**USINES DE KEUKELAERE, GHENT**
Universal Dyeing Machines for Raw Stock, Tops, Yarns on the hank, cop or tube
Felt and Wool Hats, etc.

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as made by J. B. Farrar & Sons, Ltd., are the most simple and accurate in operation

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## J. E. Lock Patent Bobbin and Spool Painting Machine

Paints Bobbins, etc., at one-fourth the cost of hand painting. A machine a boy can run. Indispensable for Cotton and other mills

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**Plans and Estimates Furnished**

**Send For Circulars** **Machine Shop, Lawrence, Mass.**

# What the Textile Manufacturer learns from this New Book

Close to four hundred concerns are today facilitating production and saving hundreds of dollars each year through their use of the power of gravity, as directed by Otis Conveyors.

Send the attached coupon for the new book, "Otis Gravity Spiral Conveyors," and learn how these concerns are using gravity. Learn the latest developments and different types in gravity equipment as shown by descriptions of ten typical installations in ten widely different kinds of business in different parts of the country. Learn how this equipment has attained a stage of adaptability making the use of gravity possible for practically every business—your business.

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**If in the operation of your mill, there is any movement of goods from upper to lower floors or levels, gravity can save you all the expense of that movement.**

This book would be worth your reading if only for its complete information on the ideal interfloor transportation systems in ten of the country's big resourceful establishments.

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Eleventh Avenue and Twenty-Sixth Street, New York

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Please send free copy of your new book to

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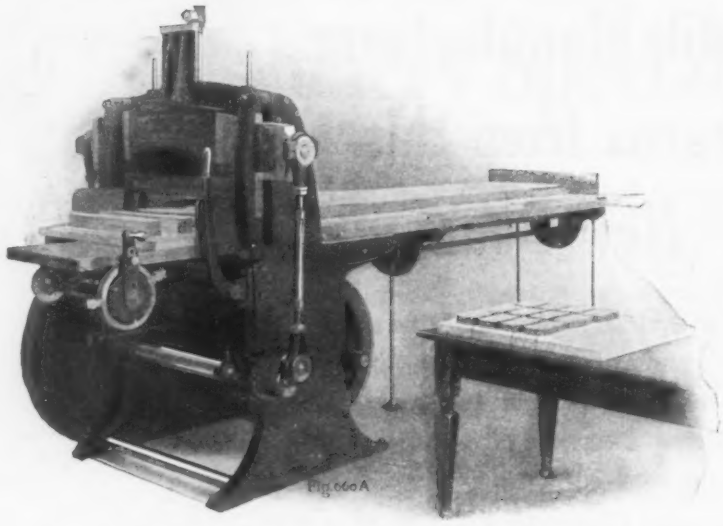
# CUTTING FACTS




### Is This Reasonable?

As the only factory devoted exclusively to the manufacture of cutting machines—

And the only one making a complete line of Cutting Machines—

We claim that our experience and specialization justifies the assertion that

**Oswego Cutters Are 100% Efficient**

They are efficient. They eliminate waste—of material—of time—of power.

A folded bolt of cloth can be cut without tearing at the folds.

The same machine can be used for either vertical or shear stroke.

Attractive samples can be cut easily and quickly—they do not fray at the edges.

Each machine is subjected to a running as well as a cutting test before leaving the works and is fully guaranteed.

### The New Oswego Autos

for both straight cutting and pinking samples, are great savers of time and cloth.

They are equipped with back gauge size duplicating attachment and any length of iron back table desired, and any other special equipment necessary for the most rapid production in individual cases.

The instant adoption of Oswego Cutters by many progressive TEXTILE MILLS indicates their success in all kinds of textiles.

Thirty-five stock sizes and styles, from 19 in. to 84 in. (larger sizes to order), enable you to select an Oswego of the size, style and price you desire. We have cutters for Paper, Board, Cloth, Foil, Celluloid, Leather, etc.

In short a cutter for every need.

***If you want Facts on Cutters, write for Circular 660***

## OSWEGO MACHINE WORKS

**NIEL GRAY, Jr., Proprietor, OSWEGO, NEW YORK**

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# TEXTILE MILLS

Designed to reduce costs and improve the working condition in the textile industry

## WILLIAM FIRTH

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ASA LEES & CO., Limited
**TEXTILE MACHINERY**
of every description for Cotton, Wool and Worsted

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Gassing, Winding, and Reeling Machinery for Cotton, Worsted and Silk

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Hardened and Tempered Steel Card Clothing for Cotton

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Prompt and careful attention given to all orders for machine parts and supplies.

Expert fitters' services furnished for overhauling and resetting machinery.

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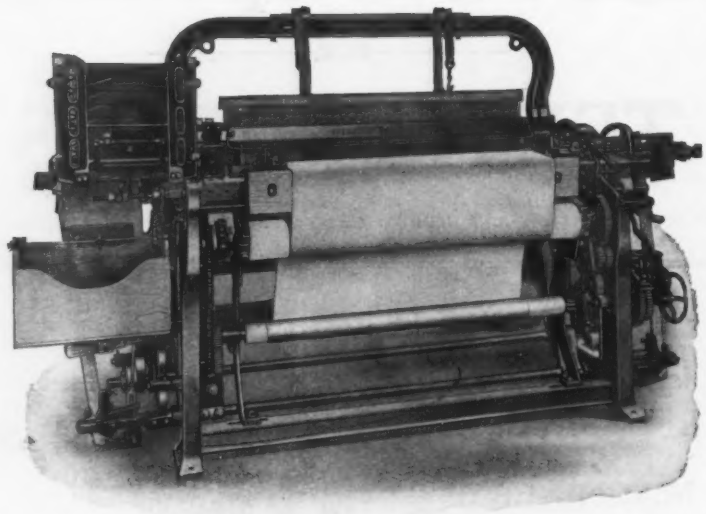


*1915 MODEL PLAIN GOODS LOOM*

Our looms are running on cotton, woolen, worsted and silk yarns and are producing the highest quality of goods at the lowest cost per yard

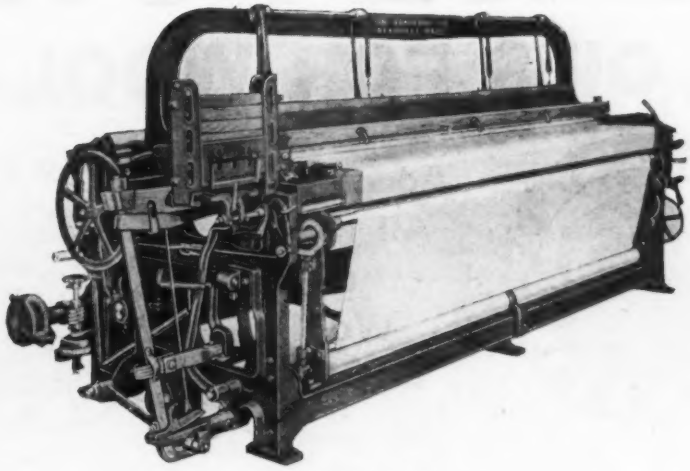
*Our 1915 model is the last word in loom construction*

***Catalogue sent upon request***

# The Stafford Company

**Readville, Mass.**

**FRED H. WHITE, Southern Agent, Charlotte, N. C.**



*BROAD LOOM*

The standard automatic loom for wide sheetings characterized by strength, simplicity, and the highest weaving qualities.

*Used by the most representative wide-goods mills in the country*

**The Stafford Company**

**Readville, Mass.**

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# "BRETON"
## OILS FOR WOOL

**Adapted for All Kinds of Wool Batching**

*In Daily Use by Leading Mills for Over 30 Years*

*Made in grades to meet different requirements*

## OILS AND GREASES
### FOR TEXTILE MACHINERY

*Loom Oils* *Spindle Oils* *Engine Oils*
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*Sufficient oil of any kind sent subject to "test and approval"*

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# Beam Warpers

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*Established 1886*

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*Incorporated 1901*

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*Southern Representative*

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# LISTEN TO THIS:—

The reason successful results are not obtained from the cones now made is that the system of winding the cone for the offtake is inefficient.

**Do you want to know how the New Altemus Cone overcomes the serious difficulties that exist and winds the yarn from the skein to the cone?**

For Natural Silk, Artificial Silk, fine Mercerized Cottons.

**It's easy to put yarn in a package but the problem is to get it off in a manner to produce the right results.**

If your bump of inquisitiveness is largely developed you will get in touch with us and find out more about the winding and you will insist on having your yarn delivered to you on the Altemus Cone.

**Write to**

## JACOB K. ALTEMUS

**2824 North Fourth Street, - Philadelphia, Pa.**

**Textile Machinery for Winding, Spooling, Warping and Beaming**

# "Monarch" Veneer Boxes

**Are Practical and Efficient Wherever Wooden Boxes are Required for Cotton and Woolen Goods, Prints, Worsteds, Blankets, Yarns, Hosiery Underwear, Silks, etc.**

**Strength, Neatness and Economy the Main Features**
**In Many Instances We Save You 20 to 40 Per Cent**

The shooks are made of three thicknesses of Northern Birch and Maple veneer cross-banded in the same manner as furniture panels, which cannot split and insures unquestioned strength with minimum weight. Further strength is assured because each shook is one WHOLE PANEL cleated with spruce bats, which will stand greater strain than shooks made of narrow boards, and are more easily set up.

**THEY PAY FOR THEMSELVES IN SAVING OF FREIGHT CHARGES**

Many shippers do not realize the loss they sustain in freight by shipping in heavy packages. In many instances we save our customers in freight more than the ENTIRE COST of the boxes.

**NO SIZES TOO LARGE OR WEIGHTS TOO HEAVY**

For years we have been serving the Textile Mills of New England with all sizes for loads up to 800 lbs. and their constant repeat orders bespeak the satisfaction we are giving.

**LET US QUOTE YOU DELIVERED PRICES**

Send us your inside dimensions and the approximate weights they carry and let us show you the Economy in using "Monarch" cases.

**VENEER PRODUCTS COMPANY, GREENVILLE, MAINE**

# "ROXBRO" BRAIDED HOSE

**A Splendid Hose For Air or Water**

Is made of high-grade materials, is very durable and flexible.

The best hose obtainable for use in connection with compressed air cleaning systems.

Gives long service and perfect satisfaction.

Give it a trial.

# GUTTA-BALATA BELTING

A belt constructed of specially woven, high-grade cotton duck, the plies being firmly bonded together with our Gutta-Balata compound.

A very strong, pliable belt, especially adapted for use on small pulleys.

Can be used in place of leather belting, with satisfaction and economy.

Send for descriptive booklet and sample.

**Rubber Belting Packings Valves Gaskets Diaphragms**

# RUBBER-COVERED ROLLERS

**New Rollers Complete Old Rollers Re-covered**

## Boston Belting Co.

HOME OFFICE AND FACTORY: BOSTON

New York Buffalo Chicago San Francisco Portland, Oregon

# SMITH, DRUM & CO.

## "BUILDERS OF THE BEST"

**Labor Saving Machinery for Dyeing, Singeing and Finishing**

**HOSIERY**

IN SULPHUR, ANILINE, DEVELOPED BLACKS AND COLORS
POWER SCREW PRESSES and MERCERIZING MACHINES

**SAVE LABOR** and **DYE STUFF** and do **BETTER WORK**
in your dye house by using

**Smith, Drum & Co. Machines**

Full particulars on application

Coral and
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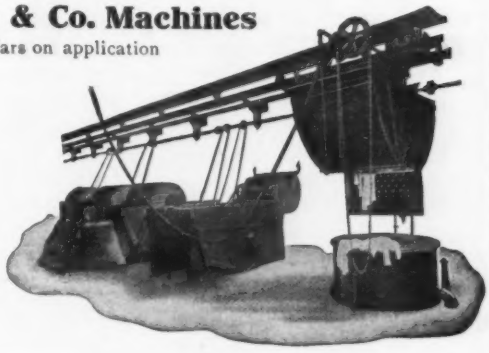

Southern Agent
H. G. MAYER
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CHARLOTTE, N. C.

## *The Economic Purchasing Agent Specifies*

# SHAMBOW SHUTTLES

"Why do you do this?" asked the Treasurer. "For various reasons," said the Purchasing Agent, including the following:

(*a*) Shambow Hand Threading Shuttles are sanitary and the weavers using them have better health with increased working capacity and less spoiled work.

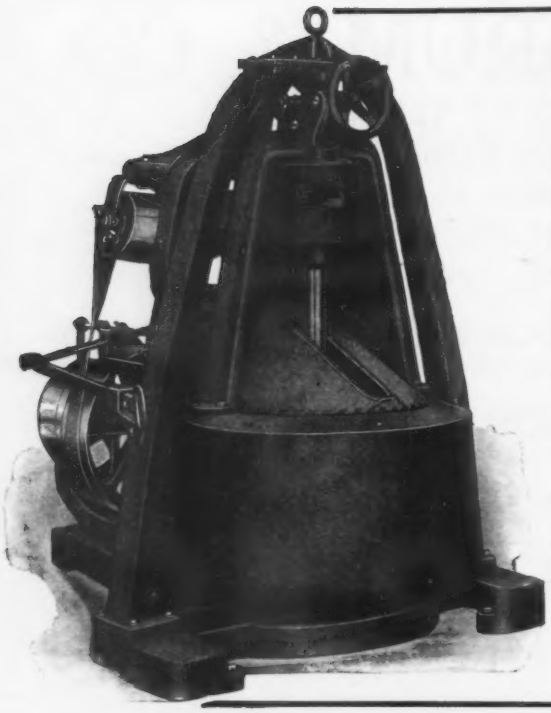
(*b*) These shuttles reduce warp and filling troubles and reduce the stoppage of looms.

(*c*) On account of the Improved Marble Spindle they last 25 per cent longer and give 33⅓ per cent more service.

(*d*) Shambow Shuttles reduce our bobbin expenses because the spindles make it easy to doff the bobbin without clipping the base and there are special catches for ringed bobbins.

*All these things tend to increased loom production with a low cost for shuttles. If you want these economies in your mill—just say the word and we will tell you how to get them.*

**Shambow Shuttle Co.**
**WOONSOCKET - RHODE ISLAND**



# Hangs Like a Bell

In an American Over-Driven Extractor, the basket, curb and spindle hang like a bell from a universal joint at the top of the tripod frame. This feature reduces vibration to a minimum. Note the rigid construction throughout. Made in 32, 40 and 48 inch diameters. Let us send you further information.

**The American Laundry Machinery Co.**

Largest manufacturers of Extracting Machinery in the United States. Four great factories

Rochester, N. Y. Chicago, Ill.
Cincinnati, O. Toronto, Can.

Sales Offices

**No. 132 W. 27th St. New York City** **No. 208 W. Monroe St. Chicago**

**Norwood Sta., Cincinnati**

**This equipment is using exhaust steam at atmospheric pressure. Compare with conditions in your boarding room**

**Saves Labor, Power, Steam and Seconds**

FORMS ARE MADE TO SUIT YOUR STYLES

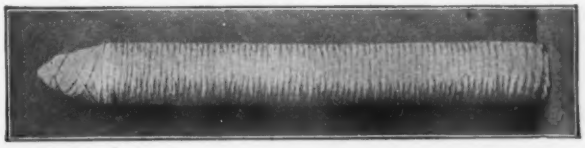
*You Can Secure This Equipment Without Capital Outlay*

For particulars write

**THE PARAMOUNT METAL FORM DRYING COMPANY, - BEAVER DAM, WIS.**

Patented Sept. 3, 1912—October 24, 1914. Other patents pending

Cops to weave from inside seven-eighths to three inches in diameter and up to seventeen inches long suitable for various kinds of coarse goods such as grass matting, cocoa bagging, cocoa matting, all kinds of carpets, felts, chinchilla, linen, jute, flax, asbestos, hose and narrow fabrics, such as wicks, belting, webbing, surcingles, halters, etc.



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**TEN YEARS OF SATISFIED PATRONS**

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**"Antiseptol System"**

The Perfect
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| CHEAPER THAN CAKE SOAP | BETTER THAN CAKE SOAP | SAFER THAN CAKE SOAP |

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| Keg (15 Gal.) | $1.00 | per Gal. |
| Half Bbl. (30 Gal.) | .85 | " " |
| Barrel (50 Gal.) | .75 | " " |
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ANTISEPTOL LIQUID SOAP CO.

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**World's Largest Exclusive Manufacturers of Liquid Soap**

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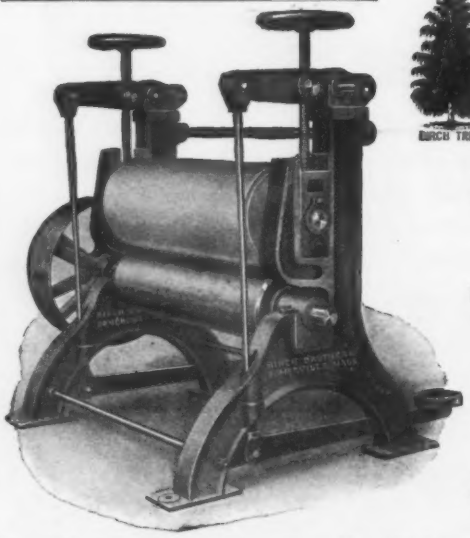
ALBERT BIRCH, TEXTILE MECHANICIAN

SOMERVILLE, MASS.



*Starch Mangle.*—This is the two-roll machine, with brass and rubber rolls. Mangles built with rollers of any material or number desired. Send for circular.

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## "Coronation"

Piece-End

## Sewing Machine

*Sent on trial most anywhere*

Sews any fabric, thick or thin, wet or dry, without change

Fine Stitch or Coarse Stitch

*Send for Circular*

Also Makers of

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Scutchers, Openers, Folders, Crabbing and Soaping Machinery

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For Spinning Cops on the Bare Spindle.

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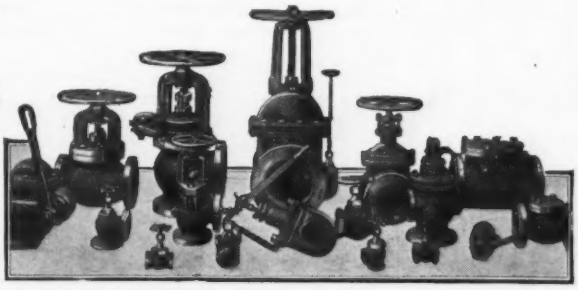
embody those essentials which make strong, seviceable valves. The iron, which was for mulated in our laboratories, is made in our foundry under expert supervision, and has a tensile strength of 25,000 lbs. per square inch. The castings are clean and solid; the metal is uniformly distributed, and the long, sweeping curves give added strength.

The high grade compositions from which the trimmings are made, are especially adapted to resist wear in steam service. All parts are machined to gauge, are interchangeable, and can be renewed without breaking pipe connections.

Ask your dealer for descriptive booklet or write for catalog.



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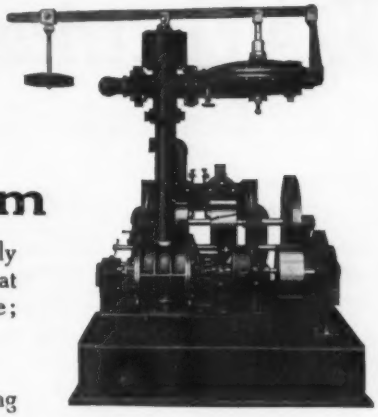
The Capacity of Your Gassing Machines may be Increased from 25% to 100% by Means of the

## Kemp Automatic Gas System



employing ordinary city gas. This device is easily installed and delivers gas and air under pressure at absolutely correct mixture; produces a clean blue flame; singes thoroughly and uniformly.

It is equally effective for heating calenders.

Flame burns in confined space; is self-sustaining and combustion perfect.

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This mixture is regulated at machine instead of burners.

Mills use the KEMP AUTOMATIC GAS SYSTEM, making a big saving in gas consumption.

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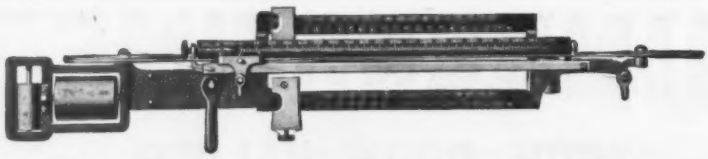

# STOP—LOOK—LISTEN—

You are well acquainted with these familiar warnings.

You should be applying this very important advice to your business.

**Stop**
- Using obsolete methods.
- Overlooking your actual conditions.
- Thinking your way is best.
- Feeling that you have not enough use for new methods.

**Look**
- At the increased convenience secured.
- At the reduction in floor space obtained.
- At the actual savings made.
- At the improvement in neatness and appearance of your Departments.

**Listen**
- To reports of earnings of from fifty to ninety per cent.
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- To the advice that all these benefits are secured by the use of the three National requisites to model equipment.

*Write for our new catalog "W" explaining fully*

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# K-A Electrical Warp Stop Service

## Despatch—Reliability—Satisfaction

Order for 45 K-A's for Worsted Mill 250 miles away. Data secured at mill, goods prepared, shipped and installed, ready to operate in two weeks.

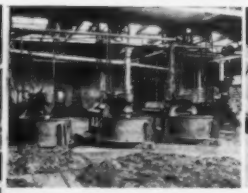
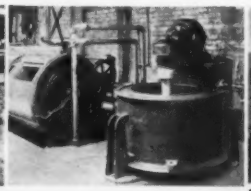
Do you realize that the K-A can be applied during the operation of the loom and hardly interfere with the weaver? It is not operated from working parts of the loom; consequently there is no prolonged stopping to connect and adjust.

Better than 95% efficiency is the claim of one superintendent for his K-A equipment.
Several mills admit that their K-A's have paid for themselves in a few months.
"Refer anyone to me," says another. "My K-A Warp Stops don't owe *me* a cent."
"Only the other day" said the agent of one of the big worsted mills "I was thinking how little trouble we have had with our K-A equipment and how perfectly it works."

The latest argument against us is that there are many more mechanical motions in use. Where's the point? Multitude does not mean merit; sometimes it means mediocrity. It's a wise man who can pick a winner. Our clients are wise.

K-A ELECTRICAL WARP STOP FOR LOOMS

**The Mossberg Wrench Co. Central Falls, R. I.**

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**Schaum & Uhlinger Extractors**

are employed by over 1300 concerns, for the obvious reason that they save money. How they do it is what interests you. We will gladly send you full information without its placing you under any obligation. Write today.

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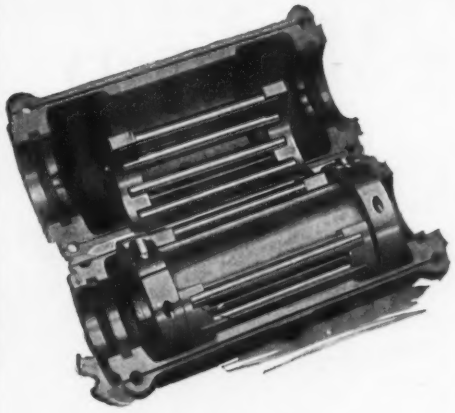

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**ROLLER**
**BEARINGS**

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THE remarkable price of Dodge Brothers Motorcar is possible only because of the super-efficient, money-saving organization and equipment of the Dodge plant.

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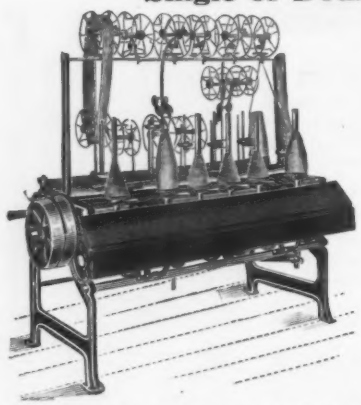
**Single or Double Side Machines as Desired.**



**Single Side Machines from 6 to 24 Spindles**
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**FOR ART or NATURAL SILK—COTTON and MERCERIZED YARNS.**

Built especially for

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All Winders Equipped with Special Swifts for Silk, Art Silk and fine yarns.

**Also Special Winders for Sweater Manufacturers.**

Small Winders are very useful in Back Winding ends of Cones, or sample skeins, or legs of hosiery that are waste.—The machine illustrated is our No. 1 machine with a perfect fast and slow motion, winding a perfect bobbin that will all knit off. For further information and prices, address

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We build a machine that will do it

For almost eighty years we have been building Textile Printing Machinery. Our Catalogue No. 151 is just off the press and if you are interested in this branch of the textile industry you will be interested in having a copy of our catalogue

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Our interest in a J-M Product does not stop with the sale. Every J-M Product is backed by the resources of a nation-wide organization with over half a century's reputation for quality and Honorable Dealing and is sold plus the assurance of a reliable service now in actual operation in every important city of North America. This service makes the J-M Guarantee of Satisfaction an actuality wherever you may be.

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They can be used to keep track of any machine's output. They operate to left or right; forward or backward; continuous or repeat.

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When properly erected, with posts set in concrete, your fence does not sag or get out of alignment or become "tumble-down." Made in numerous styles. Special designs, including some of the more ornamental patterns, furnished when desired.

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**"No-Waste"**

**Seamless Hard Fibre Roving Can**

It does not have the riveted seam that strains and breaks the sliver

NO SEAMS OR RIVETS

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Special Shapes

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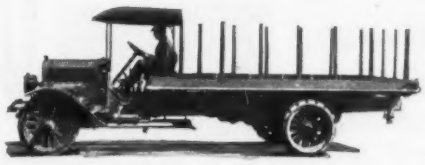
# KisselKar Trucks Always on the Job



KISSELKAR Trucks are invariably spoken of by drivers and garage men as the best trucks they know.

And it's true that a KisselKar Truck is of better material, better built, better balanced than the average truck. It is a staunch, powerful dependable, scientifically constructed vehicle—**one that is always on the job.**

KisselKar Trucks are furnished in six sizes and with bodies to suit any business or special requirement. The loading capacities are 1500 lbs, 1, 1½, 2½, 3½ and 6 tons respectively.

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Intelligent care is exercised by the Kissel Motor Car Company to furnish the *exact* truck needed by a customer.

Individual conditions, as well as those common to the line of business to be served, are minutely considered and advice given accordingly.

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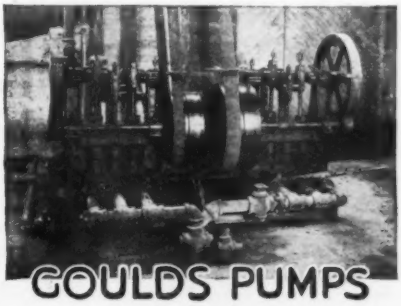
**528 Kissel Avenue, Hartford, Wis.**

New York, Chicago, Boston, Philadelphia, St. Louis, Milwaukee, St. Paul, Omaha, Minneapolis, Cincinnati, Pittsburgh, Cleveland, Detroit, San Francisco, Los Angeles, Seattle, Buffalo, Rochester, Columbus and 300 other principal points.




are used in hundreds of the country's best-known manufacturing plants where they are daily pumping such things as acids, dyes, brine, ammonia, chemicals and many other liquids and semi-liquids, in addition to water.

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Sizes 12" to 72"

*Dye Tubs and Tanks*

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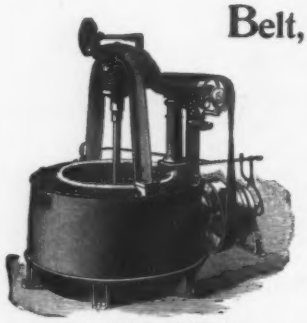
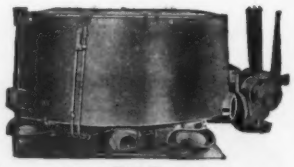


Over Driven Extractor



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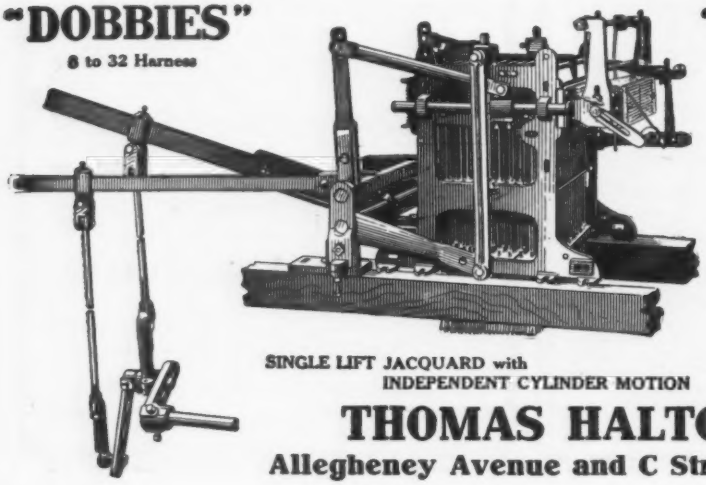

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**ALL TYPES**

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**Elevators Especially Adapted for Textile Mills**

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We make a specialty of attaching to Elevators, already in use, Automatic Folding Hatch Doors, Semi and Full Automatic Gates, Automatic Locking and Stopping Devices, Automatic Car Safety Attachments, etc.

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We are the leading builders of

## Special Machinery

for the treatment of

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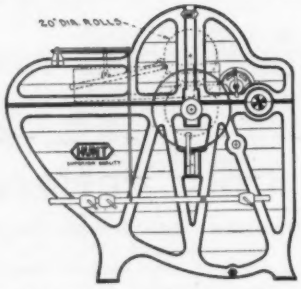
LATEST MODEL

## TYPE M Double Braced Fulling Mill



**The Mill with the 7 Exclusive Features**

Side Frames with M-Cross Braces giving greater strength and providing for much more secure fastening of side frames. Outside Compound Weight Arms controlling pressure of Packing Box Covers. Instantly adjustable from lightest to heaviest loads. Heavy Keyed Packing Box Levers outside of mill and connecting downward directly onto Covers with greatest leverage. Most effective Packing Box Construction with brass "wear strips." Adjustable bottom boards. Extra heavy design. Trouble Proof Bearings preventing oil stains. Self-aligning, assuring free running at all times. Stop Motion Frame counterbalanced, allowing instant adjustment to operate by lightest tangle or heaviest knot, as required. Fitted with positively reliable Friction Clutch Pulley of such simple design and construction that the most skeptical operators prefer after once using.

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For shrinking woolen, worsted and cotton goods; drying oilcloth, or waterproof cloth, and curing rubberized cloth.

**Can be attached to any machine or operated separately**

In use by the United States Quartermaster department for shrinking uniform cloth.

**Write for catalogue and prices**

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**Frankford, Phila.**

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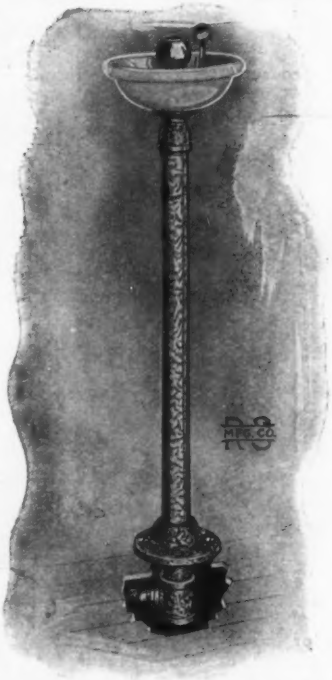

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**If You are Interested in**

## Machines for Dyeing or Bleaching Yarns

**Cotton**
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**Write us to send you an estimate of cost of installing an equipment as well as the economies in labor and steam that can be made.**

## John H. Giles Dyeing Machine Co.

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IS

## "MADE IN THE U. S. A."

**and every day it is more and more extensively used "in the U. S. A." for producing**

zero NO HARDNESS water

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zero NO HARDNESS water

## For All Mill Needs—Get the All Steel Fan

### A Perkins Ventilating Fan

***Is Superior Because:***

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Power Transmission Systems built and installed for driving any fan in any position desired.

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They are consuming your profit. Install

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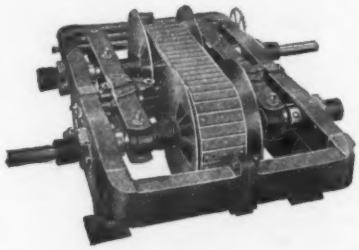
You can well afford to do this as the increase in the output of your machine and the saving of materials will soon pay the cost.

They last for many years and continue to pay you a big profit.



Sooner or later you will find that old methods of changing speed are obsolete and turn to "The Reeves" Variable Speed Transmission. It's the only real solution.

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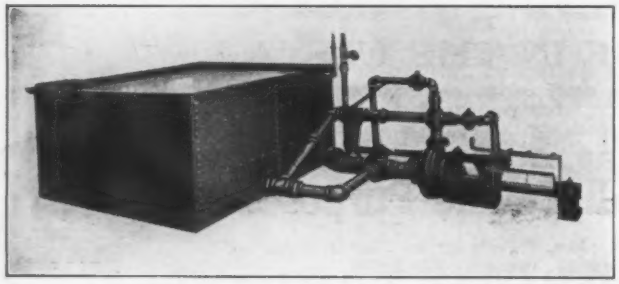
## CHAIN WARPS AND KNITTED PIECE GOODS DYEING

**Made in all sizes up to 500 lbs.**



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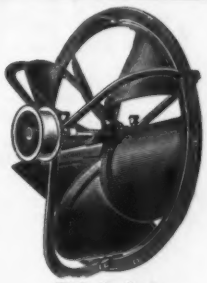

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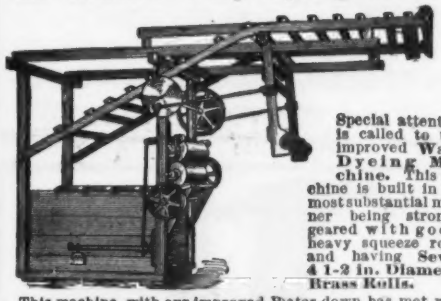

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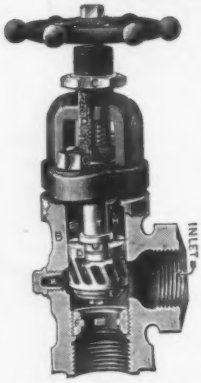


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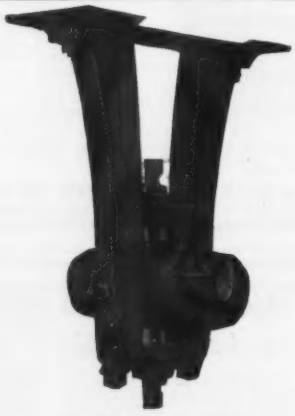

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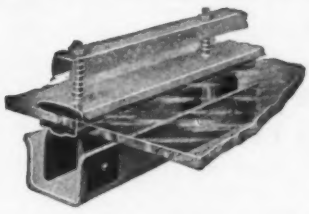

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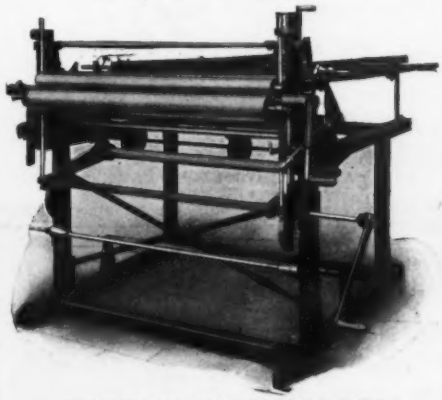

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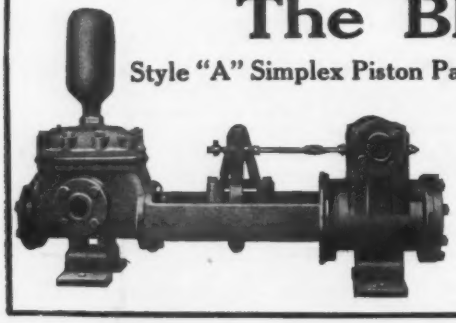

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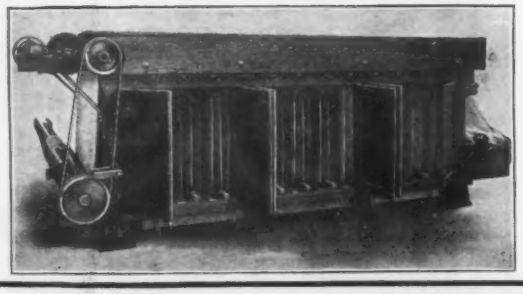

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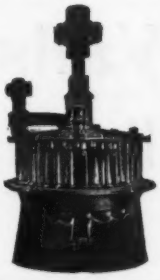

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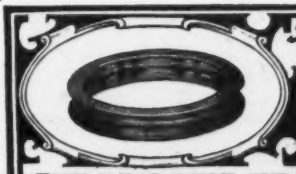

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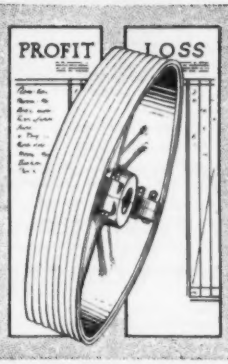


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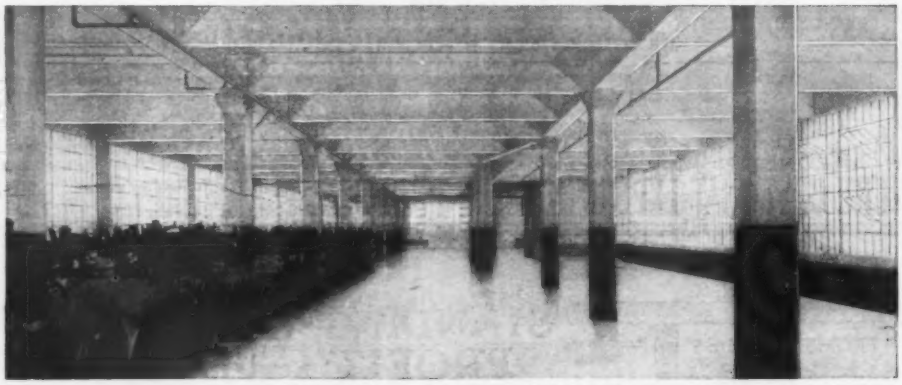

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# TEXTILE WORLD RECORD

**Published on the 12th of each month by**

## LORD & NAGLE COMPANY

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**A Complete Directory** of Cotton, Woolen, Knitting, Silk, Flax and Jute mills of the United States and Canada, together with the Dyeing and Finishing Works, Bleacheries, Print Works and other Textile Establishments; about 7,000 in all. Full information is given about each mill in almost every instance, viz., the name of the company or firm, names of officers, agent, superintendent, the character of goods made, the machinery equipment, i. e.. the number of sets of cards (or combs), the number of spindles, number of looms; whether the mill uses steam or water power, whether there is a dye house or not, the names of the selling agents or if the mill sells direct. All this and much other information contained in this book is arranged in a way to be instantly accessible.

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**Indanthrenes** Unfortunately, however, Indigo produces only a Blue, while the trade requires every shade in fast and brilliant colors. To Dr. Rene Bohn, Director ot the Badische Antlin-& Soda-Fabrik, Ludwigshafen a/Rhein, should be given credit for the discovery of the series of dyestuffs derived from Anthracene, known as Indanthrene Dyes, which produce fast colors in every desired shade and tone. The introduction of these dyes in the cotton industry has created a new standard for fastness and brilliancy, in which combined respects they excel any colors heretofore known. Indanthrenes are actually permanent while the fibre lasts, meeting therefore every trade requirement, a fact so well demonstrated that today the word "Indanthrene" (pronounced In-dan-threne) is synonymous with "Fast Colors." There is probably no factor of greater importance in the manufacture of cotton goods than the fastness of the colors, in that it constitutes a most attractive selling argument, increases their popularity, and broadens the market for them.

**BADISCHE COMPANY**

# Contents for May


PAGE

Monthly Comment . . . . . 67
The Wool Goods Market . . . . . 73
Bettering the Wool for American Mills . . . . . 75
Great Britain Purchases Indigo Crop . . . . . 76
Shoddy in Woolen Fabrics . . . . . 76
Russia's Dye Troubles . . . . . 78

CORRESPONDENCE AND NOTES . . . . . 79
International Classification of Raw Silks by Its Defects — English Notes — A Hand Book of Weaves — Wool Goods in Golden Square in War Time — Lime in Sheep Dip.

QUESTIONS AND ANSWERS . . . . . 92

The American Cotton Manufacturers' Association . . . . . 98
The National Association of Cotton Manufacturers . . . . . 120
The National Association of Hosiery and Underwear Manufacturers . . . 152
The Philadelphia Knit Goods Exhibition . . . . . 168

KNITTING DEPARTMENT . . . . . 193
The Knit Goods Situation—The Evolution of a Seam—An Improved Union Suit—Fancy Knitting—Standard Lengths for Hosiery.

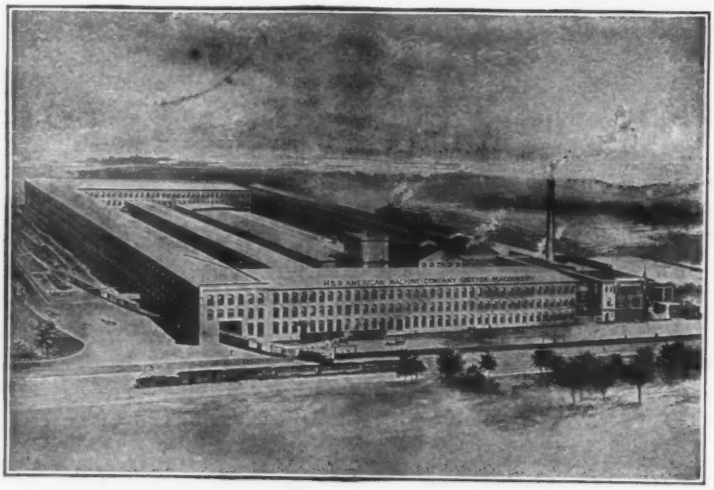
DYEING, BLEACHING, FINISHING, ETC. . . . . 197
American Dye Making—British Dye Scheme Criticised—Process for Satinizing Cotton Fabrics—Permanent While the Fiber Lasts — Dry Bleaching—Dye Recipes.

NEW MACHINERY AND PROCESSES . . . . . 203
PERSONALS . . . . . 212
NEW PUBLICATIONS . . . . . 217
INDUSTRIAL NOTES . . . . . 218
RECENT TEXTILE PATENTS . . . . . 224
TEXTILE TRADE-MARKS RECENTLY FILED FOR REGISTRATION . . . . . 224
PUBLISHERS PAGE . . . . . 240
MILL NEWS . . . . . 249
WOOL MARKET . . . . . 275
BRADFORD MARKET . . . . . 277
COTTON MARKET . . . . . 279
YARN MARKETS . . . . . 281
RAG AND SHODDY MARKET . . . . . 291
SILK MARKET . . . . . 293
MILL STOCKS . . . . . 301


## Correspondence

We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

# COTTON MACHINERY



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MAY 15 1915

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# TEXTILE WORLD RECORD

MAY, 1915

## *Monthly Comment.*

### Importing Wool Through the Textile Alliance

As a result of conferences between the Textile Alliance, Inc., and representatives of the British Embassy at Washington, the American Association of Woolen and Worsted Manufacturers, the Boston Wool Trade Association and the National Association of Wool Manufacturers, the original plan for importing wool from the British Empire through the Textile Alliance was modified to meet various objections raised by prominent wool manufacturers and which were noted in our March, 1915, issue. Following is the bulletin issued by the Alliance giving instructions regarding the method of procedure:

The application signed by applicants for permission to import wool, tops or yarns through the Textile Alliance, Inc., and subsequent obligations to be signed before possession can be obtained of such wool, tops or yarns, provide specifically that the applicant agrees not to export such wool, tops or yarns or the product of such wool or tops. There is, however, on the part of the Textile Alliance, Inc., and its allied associations a further moral obligation, contained in their agreement with the Board of Trade, that it will discourage to the best of its ability and by proper means the export from the United States of any wool, tops or yarns.

We are informed that protests have been made in Great Britain against the export of wool from that country, and we also know that a careful canvass is in progress to ascertain the exact supplies available for the later requirements of the allied armies. Should it develop that the United States are sufficiently well supplied with material to permit its exportation, a prima facie case will at once be made against the shipment of further supplies from the British Empire.

It would not be necessary under the existing circumstances that such exports from the United States should be in great quantity. A few shipments of small amount may place the whole trade in the same difficult position that existed during the first two months of the year. The Alliance, therefore, urges those who have applied for licenses through it, not only to refrain from transactions which may be open to criticism, but also to use every proper influence within their power to dissuade others from making such shipments. Consumers of wool, who benefit indirectly by the privileges granted by the British Government, are equally concerned to aid in the observance of the conditions in consideration of which these privileges are granted.

Arrangements have been made between the British Government and the Textile Alliance, Inc., of New York, whereby merino wool, black face wool, tops, noils and yarn and wooled sheepskins may be exported from Great Britain, Australia, New Zealand and South Africa to the United States through the Alliance, subject to regulations and limitations imposed by the British Government.

The Textile Alliance, Inc., at the above addresses is prepared to receive and give attention to all inquiries and applications pertaining to such imports; also to release imports after the importers have met the requirements prescribed by the British Government. Wool awaiting release will be at owner's risk and expense.

#### APPLICATIONS FOR LICENSES

Any intending importer, who has not already done so, should fill out and execute an application to have his name approved as a recipient of wool, etc., and send same to the Alliance. Blanks for the purpose will be supplied upon request.

All such applications are submitted by the Alliance to the British Embassy in Washington for approval and are then transmitted to the following representatives of the Alliance at the ports named: Messrs. Freshfields, 31 Old Jewry, London, E. C., who forward them, after approval by the War Trade Department to Messrs. Nunn, Smith & Jefferson, 448 Collins St., Melbourne.

also at Brisbane and Adelaide; Messrs. Brandon, Hislop & Brandon, 150 Featherstone St., Wellington, New Zealand; Messrs. Fairbridge, Arden & Lawton, 141 Longmarket St., Cape Town, South Africa.

Importers' agents abroad should apply respectively to the following for the purpose of obtaining export licenses or permits to ship: In England, to the War Trade Department and Messrs. Freshfields, 31 Old Jewry, London, E. C.; in Scotland, to the War Trade Department, London, and Messrs. Freshfields, 31 Old Jewry, London, E. C., and Glasgow Chamber of Commerce; in Australia, to the Minister of Customs and Messrs. Nunn, Smith & Jefferson, 448 Collins St., Melbourne, or Messrs. Nunn, Smith & Jefferson, Brisbane or Adelaide; in New Zealand, to the proper government officer and Messrs. Brandon, Hislop & Brandon, 150 Featherstone St., Wellington; in South Africa, to the proper government officer and Messrs. Fairbridge, Ardern & Lawton, 141 Longmarket St., Cape Town.

At present shipments may only be destinated to approved recipients at Boston, New York or Philadelphia, but to avoid extra freight shipments en route to those points may be diverted to other destinations after satisfactory undertakings have been given to the Alliance.

At present bills-of-lading must read in one of two ways, namely:

"To A. M. Patterson, president, for the time being, of the Textile Alliance, Inc., of New York," or

"To Messrs. (name of approved custodian bankers) for account of the Textile Alliance, Inc., of New York."

The custodian bankers approved by the British Government are the London representatives of: Messrs. Kidder, Peabody & Co., Brown Brothers & Co., Lee, Higginson & Co., J. P. Morgan & Co., the Hong Kong & Shanghai Banking Corporation (only for shipments billed to San Francisco for rebilling where through bills-of-lading to ultimate destinations cannot be obtained).

The president and the Textile Alliance, Inc., assume no responsibility in regard to financial arrangements, and buyers and sellers must indemnify and agree to hold harmless the Textile Alliance, Inc., and A. M. Patterson, individually and as an officer of the Alliance, from all liability in connection with the transactions.

The granting of licenses and permits to ship rests solely with the British Government and the Colonial Governments. Interested parties must bear in mind that licenses and permits will be granted only in so far as the requirements of Great Britain and the allied countries may permit, and furthermore, that the granting of a license does not assure that the wool is certain to be released upon arrival in the United States.

The Textile Alliance, Inc., is not informed whether applications are granted or refused. Information on such points must be sought from the proper Government officers in the ports of export.

After shipments have been made from abroad, the following features arise in the order mentioned, and blanks for the various purposes will be supplied upon request to the Alliance.

1. As soon as details of a shipment or shipping documents are available the importer should forward to the Textile Alliance, Inc., request for release, which document includes a guarantee. If this is attended to before arrival, storage charges and delays may usually be avoided.

2. Importers' request for release should be accompanied by a remittance of 1 per cent. of the invoice value to cover the Alliance's charges. It is understood that on the expiry of the agreement any balance or fund created for the services and expenses of the Alliance in handling imports shall be returned pro rata.

3. Shipments are released as follows: (a) If consigned to the bankers "For account of the Textile Alliance, Inc., of New York," the Alliance authorizes the bankers in writing to release the bill-of-lading to the guarantor. (b) If consigned to "A. M. Patterson, president for the time being of the Textile Alliance, Inc., of New York," the bill-of-lading is endorsed by the Alliance and delivered to the guarantor and the endorsement constitutes a release. Bills of lading for shipments consigned in this manner come to the Alliance direct from its representatives abroad.

4. Sale must not be made of imported wool, tops or noils or wooled sheepskins, or wool, tops or noils produced wholly or partially from same until the seller in each case applies for and obtains from the Alliance a signed consent to sale, which will only be granted when the seller furnishes a guarantee from the buyer on the approved form. Two forms of guarantee are used—one for resale to dealers and another for resale to manufacturer.

The war trade department requires that when sales are made by a dealer to a dealer both parties shall be members of the Textile Alliance or one of its associate bodies. Dealers will, therefore, find it advisable to become members, if they are not already members, of either the Boston Wool Trade Association, the National Association of Wool Manufacturers, the American Association of Woolen & Worsted Manufacturers or the Textile Alliance, Inc.

In the resale of yarns, guarantees will not be required by the Alliance except in special cases, but sellers must inform buyers fully of the conditions of sale and satisfy themselves of the buyer's intention to comply. Also, the sellers must print notice of the conditions of sale on their invoices and order blanks.

## Weights and Measures in Porto Rico

The following extracts from an address by F. S. Holbrook, Associate Physicist of the Bureau of Standards, before the Ninth Annual Conference of Weights and Measures, supplies convincing evidence in support of our contention that the weights and measures of Latin America are in a state of confusion due largely to the introduction of the

metric system, and that there is a pronounced trend toward the adoption of the English system. This tendency is natural because the old Spanish system corresponds closely to the English. The Spanish vara and English yard are each divided into three equal parts; the Spanish and English pounds, each into 16 ounces. Furthermore the sizes of these units correspond closely, the vara being 33.38 inches as compared with our 36-inch yard, and the Spanish pound is equal to 1.014 English pounds, a difference of only 1 1/4 per cent. This correspondence makes the introduction of our English system natural and easy, and taken in connection with the commercial and industrial influence exerted by the United States, explains the insistence of the Porto Rico merchants on making the use of the English system permissive.—Editor.

In August, 1913, at an extraordinary session of the Legislature of the Island of Porto Rico there was passed a weights and measures law, and this was signed by Hon. George Colton, governor of the island, who had taken a very great interest in this legislation and who had been largely responsible for its passage.

Learning that the government of Porto Rico was looking for some one experienced in weights and measures work to inaugurate the law, the Bureau of Standards, through the Bureau of Insular Affairs, War Department, offered to cooperate. This offer was promptly accepted, and I was selected to undertake the work, and I left for the island in September of last year.

Before the occupation of the island, in 1898, it is reported that there was a law on the statute books, but that it was never completely enforced. This law probably required the exclusive use of the metric system, but the old Spanish units, nevertheless still continued in very common use. Four years after the occupation of the island, that is, in 1902, the politcal code was passed which established the metric system as the sole standard of weights and measures; and the penal code of the same date provided penalties for using false weights or measures, which were described as those not conforming to the standard established by law; for giving short weight or measure; for falsely branding casks or packages, etc. As has formerly been the case in so many states, no machinery for enforcing the law was provided, however, and as a result the law was entirely ignored, and the use of various miscellaneous standards continued.

This, then, was the condition of affairs when the work was commenced. The kilogram, the United States pound, and the Spanish libre or pound for weight; the litre, the quart, and the cuartillo for liquid measure; the meter, the yar, and the vara for length measure; and the hectare, the acre, and the cuerda, for land measure, were all in use side by side, resulting on the most profound confusion. When I add that the cuartillo was a local measure, with no certain value, but probably based in a general way upon the size of bottles containing wines and liquors received from Spain and other continental countries and from the United States; that the length of the vara had been altered by the promulgation of a royal decree by the King of Spain, in 1888, and that consequently there was an old and a new vara; that there were two size cuerdas, based on the old and the new varas; and that the value of the Spanish pound was not universally understood, you may perhaps realize some of the difficulties of the situation encountered.

At the time the (present) law was introduced it provided for only the same standards that were legalized at that time, i. e., those of the metric system. The majority of the merchants strenuously objected to this. They were loath to see an enforceable law, and one that was intended to be enforced, passed containing this provision. They pointed out that the great bulk of the trade of the island was with the United States and it would be a great hardship upon them to use a system that was not in use there. Their protests were backed up by the attitude of the lower house, and as a result the bill was amended to put the metric system and that portion of the system used in the United States which was specifically mentioned in the Act upon an equal basis. The bushel and its subdivisions were purposely omitted so these dry measures are not legal there. Two other units were also introduced, the cuerda for land measurement and the cuartillo for liquid measure, this latter being defined as the one-fifth part of the gallon.

## The European Textile Industry

### DYEING SWISS SILKS IN GERMANY

The "Mitteilungen ueber Textil-Industrie," Zurich, reports that the British authorities have forbidden British consuls in Switzerland to certify that silk goods dyed in Germany are of Swiss origin. Before the war a large quantity of silk goods were woven in Swiss mills, shipped to Germany to be dyed and returned to Switzerland to be finished and shipped to the buyers. Goods woven in Germany have also been sent in large quantities to Switzerland to be dyed and returned to Germany. The British order is aimed at a branch of German industry, in which business had already been greatly reduced by the war.

### INCREASED COST OF DYEING

The "Mitteilungen ueber Textil-Industrie," Zurich, states that the Association of Silk Dyers at Balle and Zurich have advanced the price of dyeing from 10 to 20 per

cent., to take effect on March 1, 1915. It is stated that this increase was made necessary by the great advance in the cost of dyeing materials. The production of tin salts for black and colors, also of phosphate of soda as well as oil and soap and other necessary acids, have been placed in jeopardy by the war. It is impossible to obtain these materials in sufficient quantity from abroad. The stocks on hand will last from three to six months, after which it will be necessary to close the dye works. The chemical works are also greatly embarrassed and each day develops new difficulties. Orders for raw materials given months ago remain unfilled and substitutes are used at an advance of 20 to 100 per cent. It has been necessary to order tin from oversea countries as the stocks of chloride of tin in Germany nave been seized by the government. The International Association of Silk Dyers has given notice of a 20 per cent. advance in prices to take effect on April 1. The new list will remain in effect for two months and a four weeks' notice will be given of any further changes.

The Association of Swiss Silk Manufacturers have issued a circular stating that the advance of 20 per cent. in the cost of dyeing means an increase of 4 per cent. in the total cost of the goods and requests the manufacturers to notify their customers of these conditions.

### THE AUSTRIAN LINEN MARKET

The Association of Austrian Linen Weavers has issued the following statement regarding condition brought about by the war:

The Austrian linen industry depends on a steady importation of flax from Russia as the Austrian production supplies scarcely one-third of the total amount consumed. Germany has forbidden the export of flax and the material cannot be obtained from other quarters. As a result of the war and the enormously increased consumption of linen for military uses, hospitals, etc., coarse linen yarns have disappeared from the market. The lack of raw material has resulted in an advance in the price of yarn and cloths of 10 to 15 per cent. It is probable that if existing conditions continue further advances will be necessary.

### RAISING HEMP IN GERMANY

Reference was made in our March issue to the plans that had been made to raise a supply of hemp in Germany. "The Zeitschrift fuer die gesamte Textil-Industrie," Leipzig, gives the following additional particulars regarding the work:

The farmers of Germany are cooperating actively in the plans to raise hemp. The Hemp Growing Committee has already arranged for planting 1600 morgens (1009 acres) in Stettin, Landsberg and Selow. Arrangements have been made for planting hemp in Cologne, Breslau, Posen and Saxony. It is estimated that the total hemp acreage will amount to 4000 morgens (2524 acres). About 1000 centrals (220 lbs.) of seed has been purchased in Italy and Austria and the first shipments have arrived. Two stations have been established in Oderbruch and Stettin for treating the hemp crop in cooperation between farmers and manufacturers. The farmers who have already made experiments in the raising of hemp express themselves as much pleased with the results, the returns having been more satisfactory than those obtained from the sugar beets. Another advantage is that all weeds are destroyed by the cultivation of hemp

In this connection it is interesting to note the persistence of the old Prussian morgen (.631 acre) for the measurement of land in an empire which, we have been continually told, adopted the metric system without difficulty forty-five years ago.

### REORGANIZATION OF THE FRENCH INDUSTRY

"The Mitteilungen ueber Textil-Industrie," Zurich, reports a number of interesting developments in the French textile industry caused by the war. The manufacture of woolen and silk fancy goods which has heretofore been carried on at Rouen, Troyes and Amiens and in the district of Savoie, has been largely transferred to the south of France in the Lyons district. An effort is being made to transfer the center of the French wool trade from the North to the South. Plans are on foot to establish a wool exchange at Mazamet or Bordeaux. Less interest is being taken in the transfer of the woolen, cotton and silk industries of Northern France. Several French knitting manufacturers have made arrangements to carry on their business in Spain and a number of French knitting firms have established manufacturing branches at Barcelona.

### RAISING OF FLAX AND HEMP IN BAVARIA

"The Zeitschrift fuer die gesamte Textil-Industrie" states that a large area of land in Bavaria will this year be devoted to the raising of hemp and flax. This enterprise is of

the greatest importance owing to the fact that there has been no importation of flax since the day mobilization was ordered, while at the same time the demand for linen goods has been unusually heavy for army, navy and hospital uses, as well as for ordinary purposes. These conditions are very favorable for the raising of flax and moreover the change of the crop to flax is calculated to improve the land.

### POTATO FLOUR IN THE WEAVING INDUSTRY

"Das Deutsche Wollen-Gewerbe" urges German textile manufacturers to obey in every detail the Imperial Decree of February 25, which directed that all stocks of potato starch were to be seized by the Government. This order provided that all stocks of potato starch or flour be turned over to the Evaporated Potato Corporation in Berlin, and that potatoes and potato products be used for industrial purposes, such as the manufacture of dextrine, glucose and soluble starch, only by permission of the officials of the Government. It appears that this order has not been strictly observed and that many textile manufacturers have continued to use potato meal and starch without official permission. This has been particularly true in finishing establishments, dye works, weaving mills and similar establishments. Apparently these manufacturers have assumed that the prohibition of the consumption of potato products applies only to the manufacture of dextrine, glucose, soluble starches and similar products. This fact is an error. The order of February 25 forbids the use of potato flour for all industrial purposes unless permission is first obtained. A violation of this decree is liable to punishment by a fine of 3,000 Marks ($750) for every offense.

### FRAUD IN AUSTRIAN ARMY CONTRACTS

The "Wochenberichte der Leipziger Monatschrift fuer Textil-Industrie" states that frauds have been discovered in the delivery of military cloth to the Austrian army by by several Budapest firms. The quality of the cloth was so poor that the goods were suitable only for women's wear. The fraud was made known by an Austrian officer who declared that the cloth in the new uniforms went to pieces when the soldier bent his knee. As a result of the investigation which followed the representatives of six firms were arrested.

### NO MATERIALS FOR FINISHING FILLED COTTON GOODS

The German finishers of cotton goods have been completely deprived of the materials and supplies required for filled finishes, as a result of the seizure of these products by the Government. We noted in our March and April issues the growing scarcity of finishing materials and the notices issued by German finishers advising their customers of the necessity for advancing prices and changing the style of the finishes. Finally the Government commandeered practically all of the materials used for filling cotton cloths, and as a result the "Verband der Deutschen Veredlungsanstaltan fuer baumwollene Gewebe" on March 10 sent the following notice to their customers:

> We hereby notify the customers of firms composing this association that because of the order issued by the Government, the materials and supplies required for finishing cotton goods have almost without exception been commandeered and as a result are no longer available. We regret very much that we must ask our customers to bear in mind that goods can no longer be finished in the regular way and particularly that it will be necessary to reduce the filling in the so-called "filled" finishes. Our firms can, therefore, no longer guarantee the delivery of goods finished in the regular way. This notice applies to new orders received after this date and also to contracts that have not yet been filled. Should those who handle our goods have difficulty with their customers as a result of the alterations in the finishes, we will be quite willing on request to supply reprints of this notice to be delivered to those making the complaints. The recent commandeering of finishing materials gives us an opportunity to notify the trade that conditions may arise which will compel our firms, entirely independent of their wishes, to make another advance in prices. In view of this fact we advise those handling our goods to notify their customers that the prices named on February 15 are subject to change at any time.

### THE WOOL FAMINE

The entire wool clip of Germany, whether on the sheep's back or already sheared, was commandeered by the following order, which appears in the "Deutsche Wollen-Gewerbe" of March 10. That journal warns its readers to give careful attention to the order as

failure to observe it will be promptly punished.

The German wool clip of 1914-15, whether found in the possession of the wool growers in other localities or still to be sheared, also the wool in German pulleries is hereby seized for military uses and the further sale of any part of it is forbidden. Legal proceedings whose effect is to transfer the title to wool are likewise forbidden. The shearing of sheep earlier than the usual time in former years is forbidden. Wool must remain in the place where it is found when this notice is issued. If on the date of this order wool is already in the mills or in storehouses of manufacturers engaged in filling military orders, its further manufacture will be permittd providing it can be shown that it is intended for army uses. Directions for the disposition of the commandeered wool will be issued in the near future by the Royal Prussian Minister of War.

OPERATIVES IN GERMAN WEAVING INDUSTRY

The number of women and children employed in the German textile industry is reported by the census for 1913 as follows:

| | | 1913 | 1912 |
|---|---|---|---|
| Under 14 years, | male | 1,526 | 1,417 |
| | female | 2,854 | 2,802 |
| 14 to 16 years, | male | 33,506 | 33,801 |
| | female | 56,308 | 55,391 |
| Total | male | 33,032 | 35,218 |
| | female | 59,162 | 58,193 |
| | | 94,194 | 93,411 |
| Over 16 years, female | | | |
| 16 to 21 years | | 158,849 | 153,272 |
| Over 21 years | | 302,758 | 300,521 |
| | | 461,607 | 453,793 |

"The Deutsche Woolen-Gewerbe" reports the following instructions by the military authorities to the Chamber of Commerce at Berlin regarding the kind of blankets required for military uses (sizes in inches):

White wool and half wool blankets can be used. The blankets required by the army are mixed shades (not checks nor stripes) in half wool: 1, Hospital blankets, 52 by 93 inch, weight at least 4.6 lbs. 2, Service blankets, 52 by 78 or 55 by 78 inch, weight at least 4 lbs.; 3, Transportation blankets, 55 by 74 inch, weight at least 3.7 lbs.; 4, Prisoners' blankets, 55 by 74 inch or 58 1/2 by 78 inch, weight at least 3 lbs.; 5, Blankets made of cotton and good cotton waste in solid colors or mixed shades can be used for prisoners' blankets. The half wool blankets must be well washed so as not to carry the odor of oil. The cotton blankets must be unfinished. Special importance is placed on the durability of the blankets. They must stand a severe test with the thumb in both warp and filling. The goods must be well felted and the warp set close enough so that the filling will not slip.

## Wool, Tops and Yarn

The imports of wool, tops and wool yarn for the seven months ending January, 1915, are reported by the Bureau of Foreign and Domestic Commerce as follows:

Clothing and Combing Wool, Free

| | | |
|---|---|---|
| July, 1914 .....lbs. | 13,680,588 | $4,720,650 |
| August ..... | 11,700,980 | 3,089,974 |
| September ..... | 9,096,205 | 2,315,488 |
| October ..... | 7,543,479 | 1,844,032 |
| November ..... | 2,909,260 | 629,416 |
| December ..... | 962,219 | 194,810 |
| January, 1915 ..... | 7,445,517 | 1,753,210 |
| February, 1915 ..... | 16,092,943 | 3,804,491 |

Carpet Wool, Free

| | | |
|---|---|---|
| July, 1914 .....lbs. | 6,150,565 | $1,028,569 |
| August ..... | 4,777,641 | 769,841 |
| September ..... | 4,705,674 | 773,637 |
| October ..... | 3,942,256 | 641,568 |
| November ..... | 2,541,724 | 457,522 |
| December ..... | 1,955,252 | 328,200 |
| January, 1915 ..... | 4,191,043 | 604,496 |
| February, 1915 ..... | 5,414,962 | 786,138 |

Mohair, 15 per cent, ad. val.

| | | |
|---|---|---|
| July, 1914 .....lbs. | 309,250 | $101,930 |
| August ..... | 238,490 | 93,848 |
| September ..... | 407,651 | 141,040 |
| October ..... | 470,995 | 169,545 |
| November ..... | 443,466 | 171,401 |
| December ..... | 308,911 | 115,648 |
| January, 1915 ..... | 298,906 | 90,553 |
| February, 1915 ..... | 481,013 | 133,920 |

Tops, 8 per cent. ad val.

| | | |
|---|---|---|
| July, 1914 .....lbs. | 1,064,988 | $578,152 |
| August ..... | 369,230 | 191,774 |
| September ..... | 563,477 | 270,546 |
| October ..... | 433,688 | 192,899 |
| November ..... | 193,878 | 79,848 |
| December ..... | 75,468 | 27,615 |
| January, 1915 ..... | 105,833 | 39,174 |
| February, 1915 ..... | 72,168 | 35,016 |

Yarn, 18 per cent. ad val.

| | | |
|---|---|---|
| July, 1914 .....lbs. | 755,956 | $544,974 |
| August ..... | 307,825 | 223,713 |
| September ..... | 277,355 | 186,235 |
| October ..... | 374,420 | 247,750 |
| November ..... | 83,234 | 66,712 |
| December ..... | 142,255 | 97,064 |
| January, 1915 ..... | 121,463 | 90,628 |
| February, 1915 ..... | 117,985 | 84,065 |

The imports of raw silk in the United States in 1913 amounted to upward of 27,000,000 pounds, valued at approximately $93,000,000.

## THE WOOL GOODS MARKET

New York, April 29, 1915.

The wool goods market has experienced a decidedly depressing month, the initial order season being over and the duplicate orders not yet received to any great extent. The complaint of slow sales and small orders booked, for both men's and women's wear, seems to be general throughout the district.

The seasonable spring weather, which set in at a fairly early date, has had a stimulating effect on the sales of retail clothiers of all descriptions, this being essential to the success of the wholesale clothing trade on their fall business. This trade reports that retailers in some sections are making their first purchases in satisfactory quantities. Having carried over comparatively small stocks of fall and winter clothing, they are placing orders for moderate quantities to replenish their stocks.

Some of the leading clothing firms report a satisfactory business, but the trade generally are having a disappointing business which naturally reflects on the piece goods market, to their disadvantage.

The sales that have been made by the wholesale clothing trade have not yet benefitted the piece goods business to an appreciable extent, except in a few instances, up to the present time. This doubtless is because the clothiers are selling from their first purchases of piece goods and also from the fact that they do not place orders for goods to cover their entire sales until sufficient time has elapsed to determine whether or not their sales of clothing will hold good or be cancelled.

The recent decline in prices for wool has had a tendency to lower the quotations to a slight extent on several lines of goods. The changes, however, were recessions from the highest advanced prices at which few, if any, sales were made. It is understood that the new prices are above those at the opening of the season when the order business was done.

Any lowering of prices that can be made will enable manufacturers to sell goods on duplicate orders at or nearer to the ideas of buyers and enable them to sell clothing without advancing their prices. This will tend to stimulate trade and avoid friction with the buyers.

Naturally the buyers are making the most of the first signs of weakening prices and will hold off from placing their orders for piece goods as long as possible, hoping still further to depress the market. A large number of mills stand in need of business to keep their looms in operation, consequently the situation is becoming a decidedly interesting one which will be matched with interest in the woolen district. Unless wool prices should decline considerably more the prices of all woolen fabrics will necessarily have to remain about where they are and above the first order prices.

During April several contracts for army goods have been awarded by the Russian, French and Belgian governments. Other contracts are pending and unless the war comes to a sudden end there will be many more contracts given out, as there is no other country from which the belligerent nations can obtain their uniform cloth, overcoatings and blankets which are essential to the continuance of the war.

Were it not for army contracts many hundreds of looms would now be idle. The continued business on these goods and on men's and women's wear has given many mills enough work to keep them well employed for the immediate future. Complaint is heard from manufacturers regarding the continued shortage of dyestuffs which is causing much trouble. There is no doubt that inferior dyes are being used, consequently trouble with colors is bound to develop later. The preparations being made for making dyestuffs in this country, in much larger quantities, if successful will relieve the situation and to some extent make our manufacturers independent of the supply from Germany.

Of course there are always exceptional fabrics on the market that are meeting with more than the general demand; one such fabric is that of coverts which have been sold freely after having been entirely off the

market for several years. Comparatively few mills can make them satisfactorily, which may account for their scarcity. The fact that they cannot be made in unlimited quantities is in their favor, for the finer trade, as the comparatively limited supply will prevent their becoming common, as was the case with the balmacaan.

FIG. 1

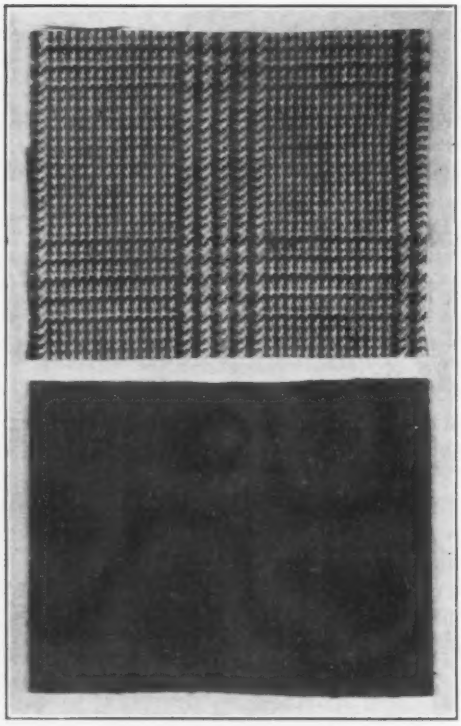

FIG. 2

Probably the latest fad to develop is the large demand for the Glen Urquhart plaid, which is an old style under a new name. At present they are very much in demand for both the present spring season and the coming fall season. The illustration shows a nine ounce dress goods fabric, Fig. 1, all worsted, at $1.02 1/2 regular. It is also being made in a heavier weight for men's wear. Fig. 2 is a wool and cotton carded fabric selling at 85 cents regular for 14 ounce goods. This line has met with a liberal patronage for men's wear.

The return of plaids to favor has brought out the same old trouble the clothiers complained of some years ago when plaids were in vogue, that is the extreme care required in matching the plaids in the coats and trousers. The exceptionally long run that stripes have had was because the clothing manufacturers appreciated the avoidance of the trouble caused by making up plaids. They do not have to pay any attention to matching stripes, which has been very much in their favor.

Some selling agents handling the best and most favorably known dress goods report that the early sales were of a satisfactory volume and that repeat orders have begun to come in from the suit manufacturers. The early trade was undoubtedly very heavy on staple goods such as poplins, which have been decidedly in the lead as a seller. The order business on fall dress goods has been in excess of the business done last year and the demand for fine goods has been considerably increased owing to the suspension of imports which were largely of the finer goods.

One feature of the duplicate business for spring dress goods has been the extraordinary demand for shepherd checks which have proven to be the most freely sold in fancy styles. These checks have been in favor for several seasons and seem to have reached their greatest popularity at the present time. Large stocks of them were carried over from a year ago and have been more quickly purchased at full prices.

Fabrics for women's coats for summer outing wear have been in liberal demand and have sold in both stripes and plaids. Chinchillas in white and other light colors have also been in favor.

One bright spot is the decided revival of the Southern business caused by the renewal of exports of cotton and the consequent large advance in price. This has had a stimulating effect on trade there. Sales of spring clothing have been in large volume for the present season, while it was very unpromising at the opening of the season.

## BETTERING THE WOOL FOR AMERICAN MILLS

Commerce Reports

The woolgrower has under the present system no way of ascertaining whether or not the manufacturer is satisfield with his product. In consequence improper methods of preparing the wool for shipment cost him from 1 to 3 cents a pound, for the manufacturer is frequently put to an extra expense, against which, of course, he protects himself by lowering the price to the grower. The grower does not often sell direct to the manufacturer, does not thoroughly understand the various processes through which the wool passes after leaving his hands, and remains ignorant therefore of the need for improvement in his methods.

To remedy this condition some form of cooperation among woolgrowers in any given region is urged in a new publication of the United States Department of Agriculture, Bulletin 206, The Woolgrower and the Wool Trade. The individual alone can do little to improve matters, for his clip is likely to be too small to induce the buyers to make any alteration in their accustomed methods of estimating wool values. With cooperation, however, it should be possible to prepare the entire clip of any section, so that the reputation of its wool would be enhanced and the growers obtain the full market value of their product. A sufficient number of woolgrowers should be included in each cooperative association, to enable at least 4,000 or 5,000 pounds of each of the various grades to be marketed at one time.

Cooperation will, of course, do little good, however, unless the individual growers follow improved methods of handling the clip. An instance of the present low price of American wool as compared with foreign is given in the bulletin already mentioned. Two lots of wool of the same grade, one of them from Idaho and the other from Australia, were purchased by a Philadelphia manufacturer—the American at 18 1/2 cents a pound and the foreign one at 28 cents a pound, before scouring. In the American fleece the kind of wool that this manufacturer really wanted amounted to 86.79 per cent. of the total; in the foreign fleece to 98.96 per cent.

A more accurate system of grading had given this manufacturer 12 per cent. more of what he wanted than the American methods. In consequence, the foreign sheep grower got the larger price for his fleece. The manufacturer paid for the imported wool 28 cents a pound and for the domestic wool 18 1/2 cents a pound, a difference of 9 1/2 cents. By the time shrinkage, "off sorts," etc., had been deducted, however, the cost per clean pound to the manufacturer of the wool he wanted was 41.32 cents for the American fleece and 44.69 cents for the imported, a difference of only 3.37 cents. It may have cost the foreign grower a little more to prepare his fleece, but he more than recovered this in the higher price he sold it for.

If American growers were in a position to understand a little better the needs of the manufacturer and the reasons for his preference for properly graded and packed fleeces, they would unquestionably be much more willing to alter their methods. The bulletin of the Department of Agriculture already mentioned gives in considerable detail much information on these points. It also suggests 15 rules for the woolgrower which, it is said, no one can afford to neglect if he is at all solicitous of the reputation of his clip. These rules are:

1. Adhere to a settled policy of breeding the type of sheep suitable to the locality.
2. Sack lambs', ewes', wethers', and all buck or very oily fleeces separately. If the bucks or part of the ewes or wethers have wool of widely different kind from the remainder of the flock, shear such separately and put the wool in separate sacks so marked.
3. Shear all black sheep at one time, preferably last, and put the wool in separate sacks.
4. Remove and sack separately all tags, and then allow no tag discount upon the clip as a whole.
5. Have slatted floors in the holding pens.
6. Use a smooth, light, and hard glazed (preferably paper) twine.
7. Securely knot the string on each fleece.
8. Turn sacks wrong side out and shake well before filling.
9. Keep wool dry at all times.
10. Make the brands on the sheep as small as possible and use a branding material that will not scour out.
11. Know the grade and value of your wool and price it accordingly.

12. Do not sweat sheep excessively before shearing.
13. Keep the corral sweepings out of the wool.
14. Do not sell the wool before it is grown.
15. When all these rules are followed place your personal brand or your name upon the bags or bales.

## GREAT BRITAIN PURCHASES INDIGO CROP

(From Manchester (Eng.) Guardian)

In order to mitigate the effects of the shortage of indigo for dyeing purposes caused by the present war, and also to prevent any speculative holding-up of natural indigo, our Government, it is officially announced, have acquired the greater part of the crop of natural indigo now coming forward for the use of dye users in the United Kingdom. British dye-using firms desirous of participating in this supply are asked to make early application to the Government's brokers, Messrs. Lewis and Peat, 6 Mincing Lane, E. C., who will furnish further particulars, and who are instructed to allocate the amount available among bona-fide users of dyes as nearly as may be in accordance with their requirements, at prices just sufficient to cover the cost of acquisition by the Government and the expenses of distribution. Priority will be given to Government contractors, and no application will be entertained from dealers other than commission buyers acting on behalf of dye users. The relief which this will give to the textile industries of Lancashire and Yorkshire is very substantial.

The supply of natural indigo comes chiefly from India. In the year 1914 we imported 594,944 lbs. valued at $890,110, as against 467,448 lbs. valued at $268,221 in 1913, and 861,476 lbs. valued at $483,512 in 1912. The import for the last month of the year was 243,600 lbs. valued at $523,814; in January 514,752 lbs. valued at $1,279,958; and in February 767,648 lbs. valued at $1,868,639. We have thus got 561,050 lbs. already this year—far more than we usually take in a year—and the value has been no less than $3,148,597. This is a striking indication of the great rise there has been in prices through the absence of the competition of the German synthetic product.

It will be interesting to add official import figures in reference to coal tar dyes, as showing the quantities we require at ordinary times. In 1913 we imported 6,811,056 lbs. of alizarine and anthracene dyestuffs, 31,699,024 lbs. of aniline and naphthalene dyestuffs, 2,675,568 lbs. of synthetic indigo, and 17,360 lbs. of other kinds. In 1914, when these supplies were cut off for several months, our imports were as follows: Alizarine and anthracene dyestuffs, 3,496,640 lbs.; aniline and naphthalene dyestuffs, 21,545,328 lbs.; synthetic indigo, 1,737,792 lbs.; other coal tar dyestuffs, 2,128 lbs.

## SHODDY IN WOOLEN FABRICS

BY K. B. LAMB, CH. E.

The determination of shoddy in a woolen fabric presents a different problem. At present there are no known methods by which a

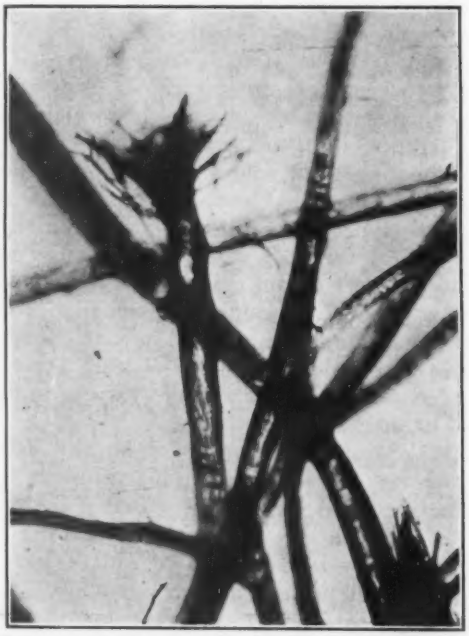

FIG. 1

quantitative determination can be made, and is is sometimes impossible even to determine its presence or absence. Negative results obtained by all known tests do not necessarily mean that shoddy is not present.

FIG 2

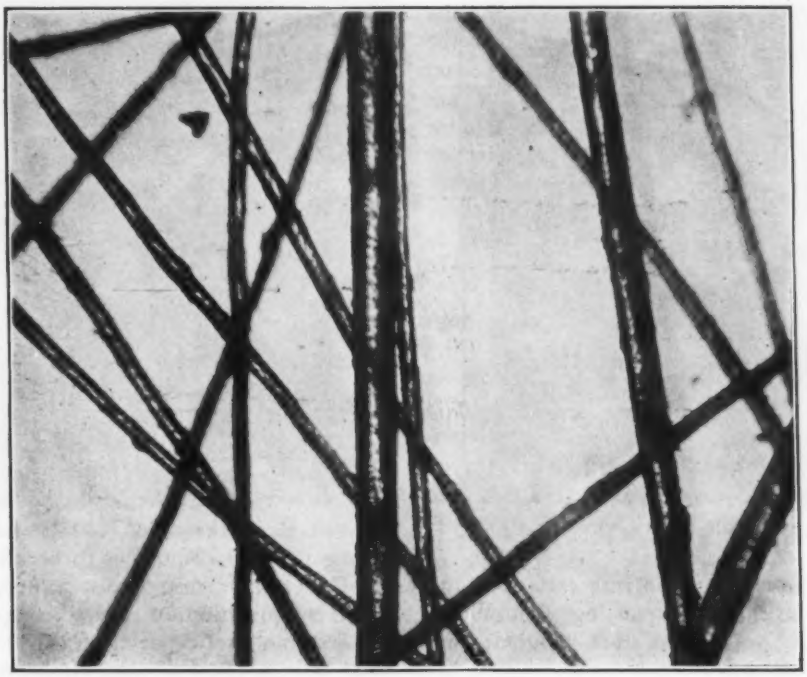

FIG. 3

This is not difficult to understand when we remember that shoddy is wool and the fact that it has been reclaimed from old woolen fabrics is the only difference between it and the new wool used.

The only basis we have for a differentiation is through any change the fiber may have undergone during reclamation. Therefore the most logical method of examination is by means of the microscope for we can thus examine the fiber itself and note the changes that have taken place. In reclaiming the wool the rags are pulled apart in machines, and hackled and combed until the fibers are in a condition for re-spinning. They are subjected to a large amount of rough mechanical treatment in addition to the chemical treatment used to strip the color. We usually find the ends of the fibers macerated and torn. In some cases the fibers are split and the characteristic scales, which are always found on fresh wool fibers, are partially removed.

In the three accompanying photomicrographs (made by the author) these conditions can easily be seen, the enlargement being to 150 diameters. In Figs. 1 and 2 the fiber ends are macerated, and in Fig. 2 the fibers are split and frayed out. The characteristic wool scales, shown at Fig. 3, are lacking in Figs. 1 and 2. The three photomicrographs show in an excellent manner the appearance of shoddy and new wool under the microscope. When conditions like these are encountered we know that shoddy is present, as new wool fibers always have clearly cut ends and uninjured scales.

Sometimes, however, when very high grades of shoddy are used, obtained from waste yarn, or loosely woven goods, in which little rough mechanical treatment is necessary to obtain the fibers ready for spinning, the ends are not macerated and frayed out and the scales are intact. In a case like this it is impossible to say whether shoddy is present.

When fibers are found with ends torn and frayed, as in the accompanying photomicrographs, it is possible to state definitely that shoddy is present.

Even if we do determine its presence qualitatively, it is a fact, as explained, that it is impossible by any known method to discover how much shoddy is contained in a fabric. This being the case, it is evidence that it would be impossible to enforce a pure fabric law where enforcement depended upon determining the amount of shoddy in wool goods.

Suppose, for example, that a tariff law was passed which stated that all fabrics containing over a certain per cent. of shoddy should be taxed a certain amount. This would sound reasonable and workable perhaps to a layman. But how are we going to determine if the percentage of shoddy is above, below, or anywhere near that allowed? At present "it can't be done," and therefore any law which is based upon any such provision is impossible of enforcement.

## RUSSIA'S DYE TROUBLES

From the Manchester Guardian

It was announced some time ago that a company had been formed in Russia for the manufacture of coal-tar colors, almost the whole of the capital ($1,250,000) being subscribed by the dyers and printers in the country. It will be some time, of course, before the new undertaking will be in a position to supply any dyestuffs, and meanwhile the position with regard to colors in Russia is likely to grow much worse. The Union of Russian Cloth Manufacturers has just sent out inquiry forms to its members with a view to ascertaining their more pressing requirements, and it is intended, as soon as these are known, to attempt to make purchases on a cooperative basis in Switzerland, Italy and Sweden. It is proposed to send a representative abroad to secure dyestuffs and to report to what extent consumers at home can rely on regular deliveries in future. It is stated that stocks of all colors have fallen to very low levels, and that many important dyestuffs are exhausted. It is reported that among the first companies to be affected by the Government decree just issued, enforcing the liquidation of enemy companies, is the Russian branch of the largest German color works, the Badische Anilin und Soda Fabrik.

# Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

## INTERNATIONAL CLASSIFICATION OF RAW SILKS BY ITS DEFECTS

BY WARREN P. SEEM

Winner of the First Prize Awarded by the Silk Association of America

(Continued from April.)

### Plate No. 5—Waste

Sometimes you will find an accumulation of defects on the thread of which you are

PLATE 5

doubtful whether they are waste or slugs; for uniformity call all such defects, of any length, when they are twisted in or matted together tight, slugs; all loose formations on the thread or spreading out in all directions and not loops or bad throws, call waste. These defects are very troublesome and about one-third break out in throwing. They run about as follows in the various grades of silk:

| | |
|---|---|
| Grand Double Extra .... | 0 |
| Double Extra ..... | 0 |
| Extra .....10 to 20 | |

PLATE 6

### Plate 7—Slugs

| | |
|---|---|
| Best No. 1 to Extra.... | 20 to 30 |
| Best No. 1 ..... | 30 to 60 |
| No. 1 ..... | 60 to 100 |
| 1 to 1 1/2 .....100 to 150 | |

The larger ones are found mostly in the lower grades of raw.

Plate No. 6—Nibs

Call small slugs about the size of a raw knot or slightly larger a nib; if there are two nibs close together and when they are large

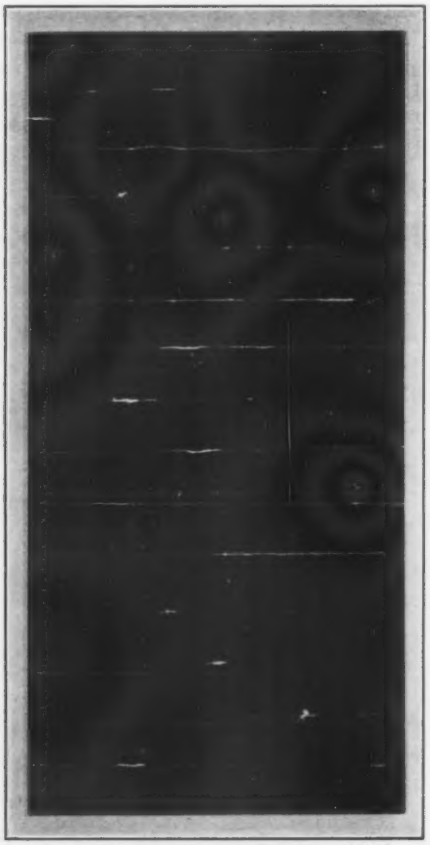

PLATE 7

or oblong call them slugs. The idea is to call those that will not show on the thread when thrown nibs and those that are large and will show, slugs. Threads that have a number of slugs on them and are large also call a slug. The nibs show about the following on the various grades of raw:

| | |
|---|---|
| Grand Double Extra... | 0 to 20 |
| Double Extra ..... | 20 to 30 |
| Extra ..... | 30 to 50 |
| Best No. 1 to Extra.... | 50 to 100 |
| No. 1 ..... | 200 to 300 |
| 1 to 1 1/2 ..... | 300 to 400 |

This is one of the defects that seems to appear more numerous in hard nature silks. As they are small they rarely show in the finished cloth, except on high-class goods and then only when they are very numerous. Practically none of these are removed in

PLATE 8

throwing. They are counted in the quality numbered so as to maintain its relative value as is explained under the proper head.

Plate No. 7—Slugs

Call small slugs about the size of a raw knot or slightly larger a nib; if there are two nibs close together and when they are large or oblong call them slugs. The idea is to

call those that will not show on the thread when thrown, nibs, and those that are large and will show, slugs. Threads that have a number of slugs on them and are large, also call slugs. The slugs show about as follows on the various grades of raw:

| | |
|---|---|
| Grand Double Extra ... | 0 to 30 |
| Double Extra ..... | 30 to 50 |
| Extra ..... | 50 to 80 |
| Best No. 1 to Extra ... | 80 to 120 |
| Best No. 1 ..... | 120 to 200 |
| No. 1 ..... | 200 to 400 |
| 1 to 1 1/2 ..... | 400 to 600 |

This defect shows up about twice as large in the dyed state. As they are generally glued together firmly not more than 5 per cent. are removed in throwing.

Plate No. 8—Loops

Sometimes you will have a break without any apparent cause, but on closer examination you will notice one of the cocoon fibers longer than the rest, as shown at C:
This invariably is due to the loop doubling up in the cleaners and breaking down the thread; call such breaks loops. You will also find them in other breaks when also enter same. Only the large loops are caught in the cleaners and those shown on quality report do not nearly represent those in the silk. They are of such size that they not only cause the silk to be unclean, but also affect the strength of the thread and must be considered a serious defect. They run about as follows on the following grades of silk:

| | |
|---|---|
| Grand Double Extra .... | 0 to 5 |
| Double Extra ..... | 5 to 10 |
| Extra ..... | 10 to 20 |
| Best No. 1 to Extra .... | 20 to 30 |
| Best No. 1 ..... | 30 to 45 |
| 1 to 1 1/2 ..... | 45 to 60 |

—÷—

## STOCKS OF WOOL IN MANUFACTURERS' HANDS

From Commerce Reports

The first inquiry made by the Department of Agriculture as to stocks of wool held by manufacturers on January 1 resulted in replies from manufacturers whose total purchases in 1914 amounted to 158,169,000 pounds of wool (raw equivalent). Their stocks on January 1, 1915, amounted to 39,995,000 pounds, which equals 25.3 per cent. of their purchases last year. Their stocks on January 1, 1914, were 22,933,000 pounds. The manufacturers reporting had, therefore, in the aggregate, nearly 75 per cent. more wool on January 1, 1915, than on January 1, 1914.

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## ENGLISH NOTES

By Our Regular English Correspondent

After long delay and many uncertainties the state-supported British Dyes, Ltd., has been ushered into life with total available means slightly exceeding $7,000,000, provided as to 43 per cent. by the general body of consumers and the remainder out of the national purse. The good will of highly influential customers like the Bradford Dyers' and the Calico Printers' Associations has been secured by finally abandoning the obligation to buy exclusively from the company during a specified term of years. No attempt can be made to forecast the ultimate future of this great experiment. What can be taken for certain is that the British production of dyes will be largely increased. Three or four color makers working not upon the largest scale, have hitherto produced some 7,000 or more tons of dye per annum at a satisfactory rate of profit. But there is a consumption within this country of about 23,000 tons per annum, valued $11,000,000 at least. In such colors as it can supply the new concern will have first call upon this eminently useful body of business. While the exact intentions of the men in charge remain unknown, it is manifest that every consideration impels them to give first attention to the dyes that are most largely used and they may be expected to concentrate upon colors suitable for the widest range of circumstances before troubling with such as have only limited and occasional use. Every dyer has been more or less in the habit of working with far more kinds of color than are indispensably needed to give the shade and fastness required. The practice has been wasteful in the dye house

where stores of unused dyes have hung on hand for years. Presumably it is not economical for color works to be making several kinds where one would serve and from its special situation the new concern should have a good chance to devise all-round colors and book orders for them that would enable the manufacture to be carried out on a large scale.

There are dyers favorable to making the new concern still more of a cooperative supply company and who would agree to pass all their orders through its agency if the company would supply all makes. Such a development may not be easy to effect, although there are consumers who think it would be to their advantage and to that of the official concern. British Dyes, Ltd., stands in a peculiar position, having been banned by influential persons of all shades of opinion. The most celebrated scientists can see ruin yawning for it. The protectionists say that the effort can lead to no good. The strait sect of free-traders condemn it as a trust, a fraud and an ignominious surrender of principle. On the other hand the textile people who look upon the affair as a commercial proposition are distinctly hopeful and cheerful about its future.

* * *

Official intervention in respect of the dye supply is bound to have its effects upon patent law reform. We have a law which nominally enables patents to be voided if the manufacture under them is done mainly or exclusively abroad. The working of that law has been a disappointment to those who expected to see new industries founded as the consequence of its operation. Now that a war has opened all eyes to the results that may follow from not having within the country a supply of indispensable material like dyestuff, the need for insisting upon the effective working of patents is intensified. It is not clear, however, that any form of words can make the working of the patent effective if the owner is disposed to place obstacles in the way. To put a hypothetical case, a patentee might import an article 95 per cent. manufactured and perform the remaining operation here; an operation transforming the article into an undeniably new and different state. Or, in another event, he might carry on 95 per cent. of the manufacture here and, for the purpose of completing the article, import the only vital ingredient from elsewhere. In either case the result might be to deprive the country of alternative supplies as effectually as though there were no compulsory working clause upon the statutes. In England, since August last, the difficulty of obtaining supplies of goods covered by German and Austrian patents has been met by grants of licenses. Manufacturers who could show a public need for the articles in question and would undertake to manufacture a certain minimum quantity at a specified price, and would further pay a royalty of reasonable amount to the patentee, have obtained leave to make use of enemies' patents. The suggestion has been offered that this method, or some adaptation of it, affords a hopeful means of securing a law providing that patents of marked utility may be fully used within the country. To become effective the arrangement would obviously have to apply to patents held by national subjects, if operated in part abroad. The question of whether and in what circumstances the system ought to be applicable to patents indiscriminately is an interesting one for discussion. If it could be demonstrated that patents were used on any large scale to block industry and prevent progress, a radical departure might be worth serious thought. It cannot, however, be professed that the upshot is easy to foresee. Not every judge is qualified to do perfect justice between conflicting industrial claims. Patentees should not suffer from fuller exploitation of their inventions if adequately paid. If they, however, did suffer in practice and were driven to shun patents and prefer secret processes, they would be forced into courses that have sometimes been thought hurtful to public interest at large. A beneficent patent law is supposed in England to have done much for American industry and to have promoted it at a time when the English law was in a backward state. However, there are at least two valuations set upon the advantage of patenting by English engineers and inventors of experience.

A group of chemists and experts upon explosives have been pressing the Government to declare raw cotton contraband, but without success. The argument goes that Germany and Austria must require for the manufacture of explosives about half as much cotton as has been normally imported hitherto, and that it is inconsistent to treat cotton more leniently than copper. It is contended by the whole chorus that it is impracticable to use cotton rags as a base for explosives. According to one of their number, a works manager confronted with a bale of mixed cotton articles would, if he were sensible, resign rather than attempt to use them for nitro-cellulose. It may be, however, that greater risks are accepted in war time and it is evident that some papermakers manage to render used cotton fairly pure. The consumption of raw cotton by manufacturers of explosives is said to be increasing the price of that material, but textile industry is affected perhaps as much by the consumption of acids. Sulphuric and nitric acids are used also to make explosives like picric acid (lyddite) and T. N. T. (trinitrotoluene) into which no cotton enters. With sulphuric acid selling at three times peace prices, every commodity into which sulphuric enters is made dearer.

The inclusion of raw wool in the British list of contraband is supposed, by clearing the air a little, to have facilitated the issue of licenses for the export of wool to Amreica and other neutral countries.

* * *

As wool comes from the soil it should contain elements valuable for the improvement of land and in view of the greater scarcity of nitrates some attention has been paid to the use of waste wool as a fertilizer. Farmers have not been in the habit of paying highly encouraging prices for wool manures, but fruit and hop growers have shown some preference for wool residues. The most valuable principle is of course the nitrogen which is found to be more abundant in waste from new wool than in waste accumulated in pulling old cloth. Woolcombers describe as shoddy the short ends that fall through their cards and such waste as this may have 12 to 15 per cent. of nitrogen, as against the 5 to 10 per cent. in refuse of the rag machines. The actual content of nitrogen is not, however, the only feature of moment. The waste should be in a condition to decompose easily and unless it is finely divided decomposition does not occur quickly enough to suit farm needs. The nitrogen forms nitrates and the remnant of the wool supplies a tilth useful in assisting the soil to retain moisture. Ideally the waste should be used near the point of its production in order to save freight. In England a good deal is sent to hop fields over two hundred miles distant and some is exported to France, if not further.

* * *

The greater part of the new crop of Indian indigo has been bought in by the British Government for distribution to consumers at cost-price with a small addition for expenses. Upon this supply contractors to the Government have first call. Urgent inquiries were sent some time ago to Jamaica to know the extent of the local resources of fustic and the absence of any further steps seems to argue the presence of a sufficiency for all needs. Nothing has been heard, however, of an investigation into the supply of logwood, of which the quantity is presumably inexhaustible. Jamaica furnishes the main quantity and largely in the form of extract. It appears from local complaints that sellers of this dyewood are receiving some 30 to 40 per cent. less for their produce than two years ago and that the producers are in effect at the mercy of one organization.

* * *

In the exports of the chief lines of textiles to the United States there is a noticeable uniformity in the rate of decrease. Taking quantities as the basis, and comparing the first quarters of this year and last year, it appears that just about 60 per cent. of last year's business has been done in cotton yarn and goods, worsteds and stuffs, jute piece goods and linen yarn and goods. The circumstances of the producing industries are so far unlike as to make this substantial agreement of experience somewhat remarkable. There are notable exceptions to the

general rule in worsted yarn in which some 85 per cent. of last year's business has been done, despite the embargo upon the export of crossbred qualities. In carded woolen fabrics the export is 45 per cent. of last year's and in carpets shipments are actually larger than in the first three months of 1914. Last years' business in jute rovings for cotton bagging and jute yarn has tailed away nearly to nothing. The general decline of 40 per cent. is perhaps the reflection of the conditions of American business. Of the materials concerned some are cheap and abundant and others dear and scarce, while others again are the subject of restrictions upon export. The goods are made by mills, some of which are in want of orders while others cannot cope with their work.

Exports U. K. to U. S.
Three Months January-March

| | | 1914 | 1915 |
|---|---|---|---|
| Cotton yarn | lbs. | 1,772,500 | 1,125,700 |
| Cotton piece goods | yds. | 19,396,900 | 11,823,500 |
| Worsted yarn | lbs. | 390,300 | 330,500 |
| Woolen tissues | yds. | 2,281,300 | 1,048,000 |
| Worsteds and stuffs | yds. | 10,063,800 | 6,260,700 |
| Carpets | sq. yds. | 135,100 | 151,200 |
| Spun silk yarn | lbs. | 195,225 | 148,040 |
| All-silk broadstuffs | yds. | 88,688 | 41,114 |
| Mixed silk broadstuffs | yds. | 462,159 | 203,923 |
| Jute yarn | lbs. | 764,500 | 51,800 |
| Jute piece goods | yds. | 19,158,800 | 11,832,300 |
| Linen yarn | lbs. | 788,800 | 495,200 |
| Linen piece goods | yds. | 36,742,200 | 19,806,400 |

* * *

No pronounced changes are to be chronicled in the condition of trade. Business in cotton goods does not improve fast enough for the liking of weaving manufacturers. Spinners of Egyptian qualities are passing through an unprofitable time. The military orders for cottons are large enough to be appreciated and to make an important difference to particular concerns, but they are far from making up for the loss of ordinary business. Sandbags made of coarse cotton yarn instead of jute are a new thing in the army supply trade. Drills for tunics and overalls, Bedford cord for breeches, cotton haversacks, waistbelts, cartridge belts and scabbards continue to be made on a large scale. It is evident that British needs for woolen and worsted cloth have been overtaken for the present and the new business comes from the Allies.

Most manufacturers feel the pinch of labor and means are continually being devised for freeing more men from the mill. Women are being initiated into men's jobs for the duration of the war and in many directions wages of young people are going up. As much as $5.76 a week is being paid to spinners' piecers in some worsted mills. The question of how to find work and wages for the people no longer exists; the problem is to find people for the work. A number of Belgium refugees are taking part in the production of woolens and flannel.

* * *

Puttees are articles borrowed from the example of the Indian army and first came into prominence in the war in South Africa. They are long narrow strips of cloth or knit fabric wound spirally round the leg from ankle to knee which gives support to the muscles and are a protection against mud and thorns. Puttees have not been an unqualified success in the wet trenches of Flanders where they have been replaced by loose wading boots. Many cases of so-called frostbite are attributed to the constriction of the leg caused by puttees which have shrunk around the limbs of the wearer. Shaped knit puttees as an improvement on strips of plain cloth have been produced for several years past and they present a neater appearance in wear. Many English manufacturers are anxious to produce the article after a method patented by a German, Tenfel, which is apparently the same that has been used for making elastic surgical bandages. Yarn of abnormally hard twist is employed and the fabric is woven with alternate threads of right and left hand twist. An open structure is used and the twist is sufficient to bend the threads right and left and close the intertices. The system would seem to involve special tensioning in the loom and in wear fabrics of the kind are perhaps less likely to strangle the bloodvessels when wet.

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In the last four years the total exports of cotton-cloth from Great Britain to all countries was as follows: 1910, 6,018,454,000 yds.; 1911, 6,653,613,000 yds.; 1912, 6,912,919,700 yds.; 1913, 7,075,558,400 yds.

## A HAND BOOK OF WEAVES

By G. H. OELSNER, Director of the Weaving School at Werdau.

This Series began in July, 1911

(Translated and Revised by Samuel S. Dale.)

The diagonal effect at Fig. 1795 results from a 3 light 3 dark pattern in warp and filling. Very attractive designs can be produced by a regular transposition of this weave. Thus the color effect at Fig. 1798 results from a 3 light 3 dark pattern and the transposition of the weave in plain weave order as shown at Fig. 1797.

Fig. 1799 shows the color effect resulting from a transposition of the same weave according to the motif shown at Fig. 936.

Mixed effects are obtained by the use of single and isolated threads of one color in the pattern. The color and weave pattern must not begin and end together, but must be different in size so as to bring the colors successively on all the different shafts and picks of the weave draft.

FIG. 1790

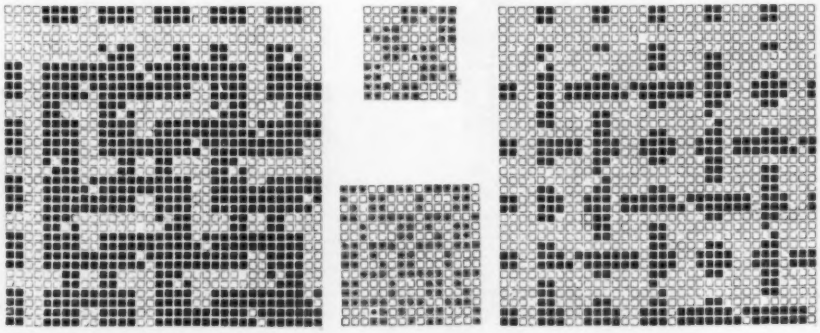


FIG. 1789 FIG. 1792 FIG. 1791

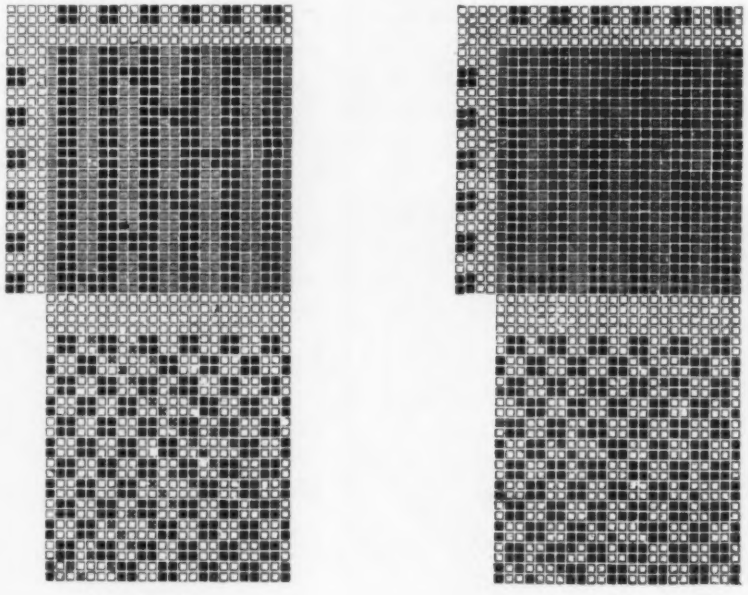


FIG. 1809 FIG. 1810

Two patterns of this kind are shown at Figs. 1800 and 1805; each has a 2 light 1 dark pattern in warp and filling. The former

Copyright, 1915, by Samuel S. Dale

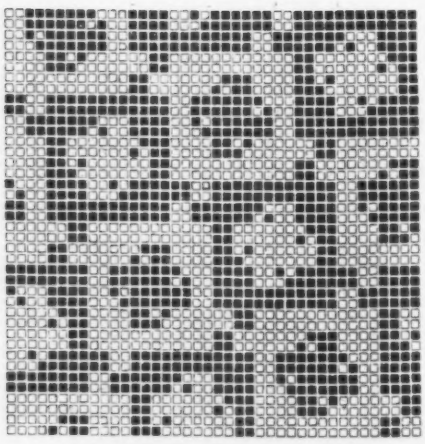
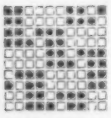


FIG. 1793

FIG. 1794



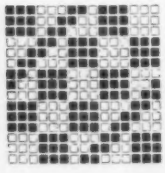


FIG 1796

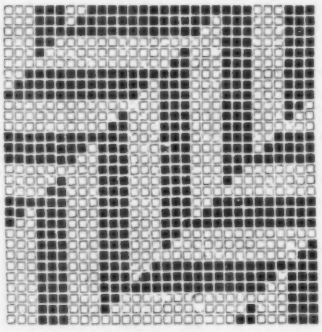


FIG. 1795

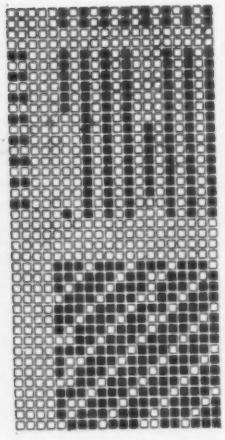


FIG. 1820

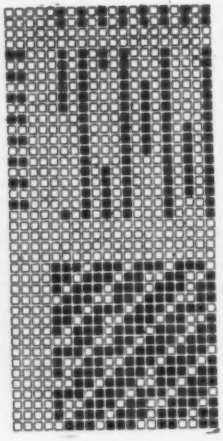


FIG. 1821

is an 8-shaft, the latter a 16-shaft crepe weave.

A very attractive line of patterns can be made by combining a 2 up 2 down basket, Fig. 1801, with the weave shown at Fig.

FIG. 1815

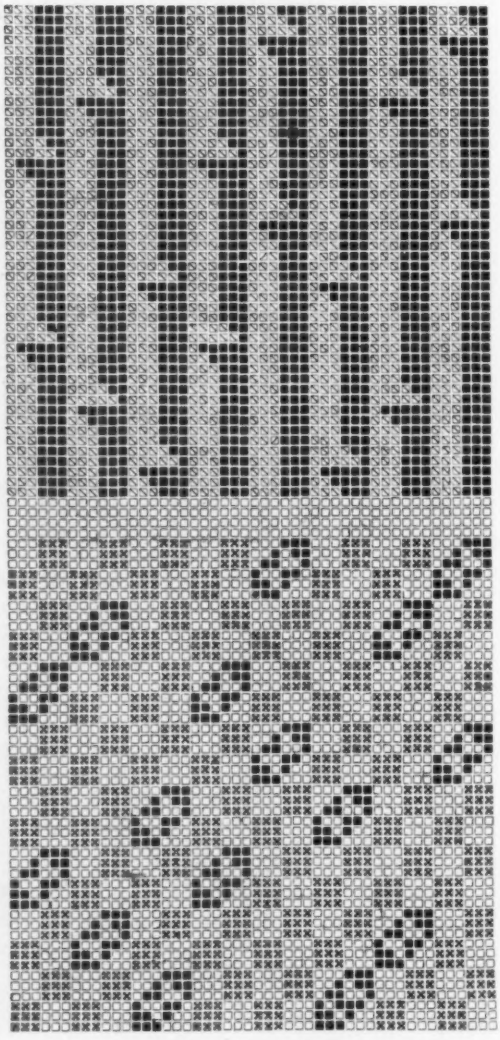


FIG. 1816

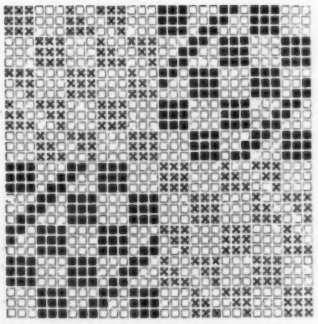


FIG. 1797

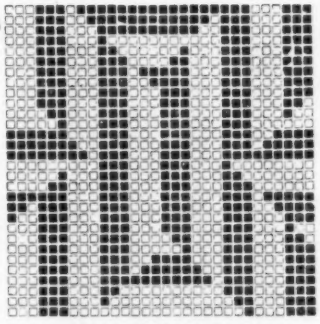


FIG. 1798

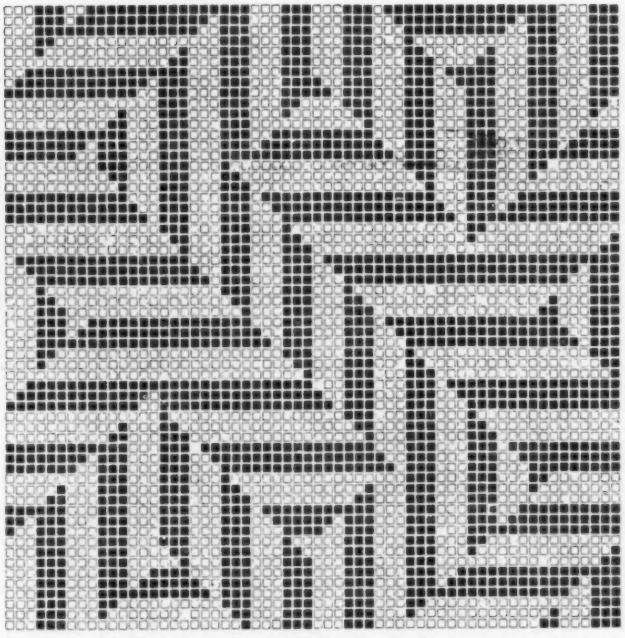
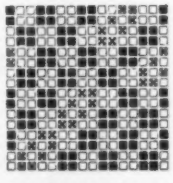


FIG. 1799

FIG. 1801 FIG 1802

FIG. 1803



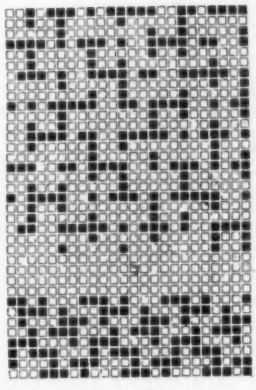


FIG 1800

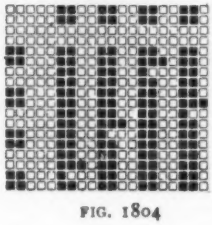


FIG. 1804

FIG. 1811

FIG. 1812

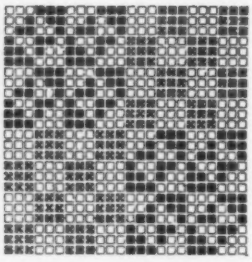


FIG 1814

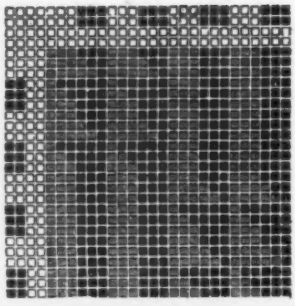


FIG. 1813

FIG. 1817

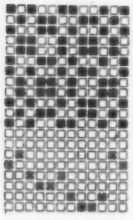
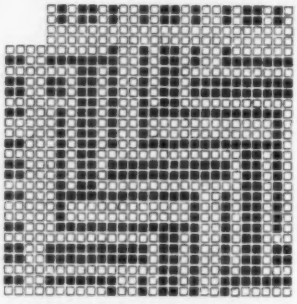


FIG. 1818



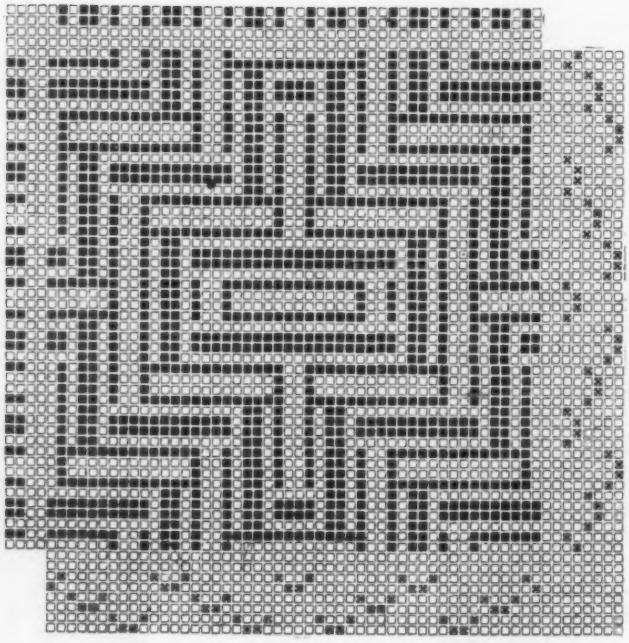


FIG. 1819

1802. Fig. 1804 is the color effect resulting from a combination of these two weaves in broken 4-leaf twill order as shown at Fig. 1803.

In Figs. 1809 and 1910 the dark spots in the light stripes are larger than those in Fig. 1804. An examination of the weaves and corresponding color patterns will show the method of producing them. Fig. 1809 shows the spots arranged in pointed form; Fig. 1810, in 6-leaf satin order.

dark 1 light, total 8; the weave is shown at Fig. 1817.

This style of design can be greatly varied by rearranging the drawing-in draft and filling weave; an example is shown at Fig. 1819 in which the color effect results from the weave at Fig. 1817 with the color pattern and drawing-in draft at Fig. 1819. The method of rearranging the picks of Fig. 1817 is shown at the right of Fig. 1819.

Streaked or spotted effects with a 1 dark

FIG 1806

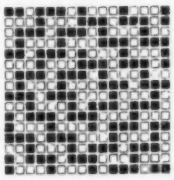
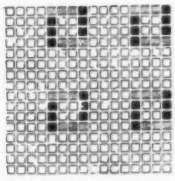


FIG. 1807

FIG 1808



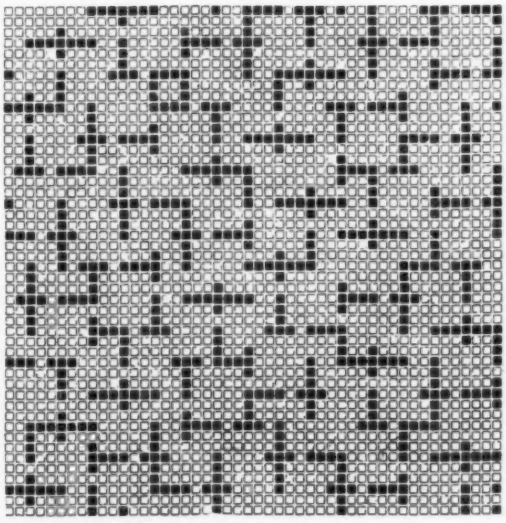


FIG. 1805

With a 3 up 3 down basket weave, Fig. 1811, the spots are produced by inserting the weave shown at Fig. 1812. Fig. 1813 shows the effect obtained by arranging the two weaves in checkerboard order, as shown at Fig. 1814. Fig. 1816 shows them arranged according to the accompanying motif, Fig. 1815.

Another class of designs is illustrated at Fig. 1818, in which the warp and filling pattern is 1 light 1 dark 1 light 2 dark 1 light 1 light pattern in warp and filling are produced in the following manner:

A 4-leaf warp twill is first drafted over the pattern area. The risers are removed for certain distances from a dark warp thread, throwing the thread on the back in a 1 up 3 down order. This causes the light threads on either side to approach each other and make a more pronounced streak of the light shade in the cloth. Figs. 1820 and 1821 illustrate the method and the effect produced.

## WOOL GOODS IN GOLDEN SQUARE IN WAR TIME

(From An Occasional Correspondent)

London, April 25, 1915.

Those American buyers who come to Golden Square, London, to buy may be interested to know how matters are progressing in woolen circles in London, and to learn how the war is affecting the trade from the selling end.

Most of the warehouses are naturally quiet. The trade in mufti is at a very low ebb, and it is only the little business in khaki which is being done on the officers' account, which enables the woolen merchant to keep going.

Most of the largest West End houses were heavily hit by the war. The debts owing by tailoring houses in Germany, Austria, Italy, Belgium, Russia and most of the neutral countries of Europe constituted a very large amount, and the embarrassment caused to merchanting houses was considerable. In addition to debts owing, many London houses were just preparing to ship their winter consignments.

August is usually the busiest month of the season for getting off the winter parcels to the Continent of Europe. As the orders come in they are usually cut off and laid aside in the basement to wait the delivery time and in order that a large consignment may be made to save expenses of freight, etc. These lengths were thus thrown on the hands of the merchants and have had to be sold for what they will fetch. The continental taste is somewhat different from the English, so that these lengths would not reach anything like cost prices on this side.

The result of all this is to throw merchants back upon the favor of manufacturers for extended credit, for the merchant has had to be frank and tell the manufacturer that he could not pay, and the manufacturer has had to wait. In some instances the merchant has been able to obtain the assistance of the Government and get an advance of fifty per cent. of his debts granted in order to tide him over the period of difficulty.

Manufacturers have felt the pinch keenly, for they have losses of their own to shoulder, while at the same time they have been obliged to do what they can for their merchant friends.

Khaki and all war goods have been sold on quite new terms, known as the "net and net" system. The War Office pays for all supplies as soon as they are passed and they estimate all fabrics on the 36 inch measure basis. Consequently manufacturers have sold to the trade on the same terms, so that both merchant and tailor have had to pay net cash in 14 days and get only 36 inches to the yard in place of the usual 37 and a quarter yard in ten yards. What this innovation will lead to no one knows, but it is affirmed that manufacturers will never want to revert to the old system of 38 inches and the long credit. These are some of the problems which are being discussed, and it is felt that the present opportunity is one which may never recur. All these little grievances of past years will most likely come up for settlement when the woolen industry resorts to its long promised threat to put its house in order.

The staffs of most of the houses have been reduced enormously. This because most of the young men have enlisted in the army or navy, and partly because the merchants could not afford to keep them. There is nothing to do in these times and the enlistment has removed the necessity of getting rid of the warehousemen. Many agents are also hard hit. In times such as these the characters of manufacturers are revealed. There have been numerous instances of manufacturers getting rid of agents who have represented them faithfully and efficiently for many long years. Now that they can get all the orders they require for khaki, the agent is either told to go or being held up for want of something to sell, and the manufacturer shuts him out from participation of any of the little profits which accrue from contracts. It must not be assumed that this is done in all cases. There are many manufacturers who are giving their agents full commission on all Government orders, realizing that the agent must live, and that the time will come when they will

again require an agent, and also when they will have to face the music of the merchant customer, who is usually very true to the man who sells him the goods.

Business was never so difficult. The long dates given for delivery, the difficulty of knowing whom to trust, the trouble in getting dyewares, especially blues, the constant rise in the price of raw material and the consequent rise in prices of finished goods, all tend to make life full of trouble.

Meanwhile Golden Square goes on in its old way. The new buildings are nearing completion. The magnificent warehouse of A. Gagniere & Co. will be finished by the time the spring season has begun. This is about the finest woolen warehouse now in London. Then there are the new offices in Grafton House at the corner where the old Ronveau Hotel used to stand. These are now finished. On the other side of the Square, where it backs on Warwick Street, there is a big batch of warehouses coming down in order that new ones may take their place. Close by is the colossal new Hotel being erected by The Strand Hotel Company. So that visitors to Golden Square will see changes when they come again.

Many of the offices of the German buyers, some of them quite palatial in their way, are being let to other firms, as the landlords were not getting their rent for them. The furnishings in some of these offices cost large sums and one wonders if the German buyers will ever come to Golden Square again. Many of these buyers were personal friends of the manufacturers and agents, and they are not blamed for the war, but on the contrary are objects of sincere sympathy as being the victims of the conflagration.

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## LICENSES TO WORK ENEMIES' PATENTS

From Manchester Guardian

The "Law Journal," dealing with the report of the British Patent Office, expresses satisfaction that in the sphere of law, belligerency is not allowed to supersede the regular comity of nations. Licenses have been granted, 172 for patents, 21 for trade marks, and one for design, to suitable applicants to manufacture certain goods patented by alien enemies, but which are essential to the nation's trade, on condition that a royalty is paid to the Public Trustee. The ultimate destination of these royalties is to be considered by the Board of Trade at the conclusion of the war.

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## LIME IN SHEEP DIP

Berkhamsted, Eng.,
8th April, 1915

*Editor Textile World Record:*

Dear Sir:—On page 594 of your March issue you reprint some information with regard to sheep dips in Uruguay which you state to have been supplied at your request by the United States Consul in Montevideo.

Whilst we are glad to note the statement to the effect that Cooper's dip (of which we are the manufacturers and sole proprietors) is the dip most widely used in Uruguay, we would ask your leave to correct the assertion that Cooper's dip contains lime and tobacco, for neither of these ingredients enter into its decomposition in the least degree.

There is confirmation of this fact in your issue for May, 1914, where you published an analysis of our powder dip made by an Australian Government official, which shows no trace of either lime or tobacco.

The evil effect of lime upon the wool fiber is widely and generally understood and appreciated.

We may add that we are taking steps, through our branch house in Montevideo, to request the United States Consul to correct this statement of his which we regard as seriously reflecting upon our preparation.

We feel that, in fairness, you will be good enough to give this letter of ours as prominent a position in the columns of your Journal as you gave to the statement which it is so important to us to have corrected.

Yours very faithfully,
William Cooper & Nephews.

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Nearly all of the imported cotton consumed in this country is Egyptian, which is used principally for mercerizing and in the manufacture of thread, knit goods and lace.

# Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

## WORKING CLAUSE IN THE PATENT LAW

*Editor Textile World Record:*

You are evidently in error in supposing that the German working clause acts to enforce manufacturing. The most perfunctory working of a patent satisfies the German conditions. The manufacture of two or three pieces a year is quite sufficient. Arbeiter (2476).

The efficiency of the working clause in Germany is shown, not only by the development of German industries based on patents, but also by numerous cases in which German patents have been revoked because of non-working. Following are references to fifteen such cases between 1881 and 1892, as reported by Brandon & Sons, patent agents, Paris, 1899:

Patent office, Jan. 20, 1881. Patent 831, Kindermann (German). Gas engine. Revoked. No engine completed. No intention to build engine.

Patent office, Dec. 14, 1882. Patent 3895, Miller & Diehl (United States). Sewing machines. Revoked. Patentees imported machines from abroad, but took no steps toward manufacturing in Germany.

Patent office, Feb. 7, 1884. Patents 6523, 7168 and 12529, Reckendorfer (United States). Pencil holder. Revoked. Patentee had imported pencil holders from Germany on a large scale, but had not manufactured or taken any steps toward manufacturing in Germany.

Patent office, Feb. 11, 1886. Patents 21185, 21186 and 21548, Borton & Willcox (United States). Sewing machine. Revoked. Patentees had imported a limited number of machines and had not manufactured in Germany, but had advertised willingness to grant licenses. The licenses offered were under restructions which imposed too great obligations on licenses.

Patent office, Jan. 6, 1887. Patent 11392, Miller & Diehl (United States). Sewing machine shuttle. Revoked. Patentees had refused to grant a license; had imported 250,000 shuttles from abroad and had manufactured in Germany only 3,000 shuttles. While it was held that it was not required that the whole of the home demand must be supplied by goods manufactured in Germany, the number of shuttles made in Germany by the patentees was out of proportion with the demand.

Patent office, May 31, 1888. Patent 30147, Morin (French). Process and machines for making boot and shoe caps. Revoked. No manufacture in Germany. Patentee advertised offer to grant licenses, but did not show that his offer was in good faith.

Patent office, Oct. 4, 1888. Patent 20252, Clark (English). Regenerative gas lamp. Revoked. Parts manufactured in Germany, but no manufacture of complete lamp in Germany, and no showing of reasons why complete lamp could not have been made there.

Patent office, Oct. 11, 1888. Patent 14287. Jacquemin-Verguet Aine Freres (France). Folding measuring rule. Revoked. No manufacture in Germany. Large importation.

Patent office, Jan. 9, 1890. Patent 36077. Berolzheimer (German). Pencil holder. Revoked. Patentee had arranged to manufacture certain parts in Germany, but imported the important parts from abroad. Held that the patentee had not done all that he could have done.

Patent office, Jan. 23, 1890. Patent 33790, Ford & Archer (English). Roofing material. Revoked. Patentee imported the material from abroad, claiming too limited a demand to warrant erection of a factory in Germany and also claimed other obstacles to its manufacture in Germany; also that they had offered, by advertisements, to grant licenses. Held that in case of a paying manufacture the obstacles to its manufacture must, in order to excuse non-working, be unsurmountable.

Patent office, Feb. 12, 1891. Patent 23953, Baker (United States). Grinding machine. Revoked. License granted to German to manufacture one size only, while machines of other sizes were imported in large quantities. The restricted license was held not to be sufficient.

Patent office, Aug. 2, 1891. Patents 42951 and 43369, Paine (United States). Shoe-lasting machine. Revoked. Patentee did nothing beyond offering license in brief advertisements

Patent office, June 30, 1892. Patent 25513, Carmont (English). Process of rolling wheel rims. Revoked. No attempt beyond slight correspondence and brief advertisements to manufacture in Germany. Product imported into Germany.

Patent office, June 13, 1895. Patents 32346, 32586, 34575, 40857 and 42171, Mergenthaler (United States). Linotype machines. Revoked. Patent 57318. National Typographic Company (United States). Linotype machines. Not revoked. The earlier patents were revoked because not manufactured in Germany. No importation into Germany. Inventions covered by these patents had only been tried experimentally, even abroad.

Patent office, Apr. 8, 1897. Patent 55020, Von

Gooding & Ladd (United States). Lasting machine. Revoked. Machines made under patent had proved unsatisfactory and had been supplanted by improved machines covered by later patents. Held that the German industry had an interest in the revocation of the patent by reason of its broad scope.

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### FLAT STRIPS ON A CARD

*Editor Textile World Record:*

What causes the flat strips on a card to be heavier when the front knife plate is set further away from the cylinder? Carder (2440).

The flat stripes are heavier when the plate is further from the cylinder because more fibers adhere to the top as it raises from the cylinder when it reaches the edge of the plate; these fibers are taken off in the strips. If the plate is set close to the cylinder, more of these fibers adhere to the cylinder and are taken off by the doffer.

Minto.

There is much difference of opinion as to why the front knife plate is set further away from the cylinder causing the strips to be heavier. This is a very ready method of increasing the weight of flat strips and is generally certain. It is generally supposed that, because of their greater length, long fibers will adhere to the teeth of the cylinder while the shorter fibers will adhere to the teeth of the flats. There is no doubt, however, but that much good fiber is transferred to the flats and is then taken out as waste. On the other hand many short fibers adhere to the teeth of the cylinder and penetrate between the teeth better than the longer fiber. To open out the front knife plate at the top would, therefore, take out not only a good proportion of short fibers, but also a good proportion of long ones. I do not recall ever having had a clear explanation as to the cause of this.

One function of the flats is to take out the short fibers. As the flats leave the cylinder the teeth of the flats can retain their hold on the short fibers and remove them when the top of the front knife plate is close to the cylinder. When the top of the plate is opened out there is more liberty given to the flats and they are able to take more cotton off the wire of the cylinder. It is also possible that the centrifugal force exerted by the cylinder will allow the cotton to open out at that point and in this way allow the flats to take out more.

There is also the question of air current. It is possible that the revolving of the cylinder at a high speed will cause sufficient air current when the top of the plate is opened out, to throw the fibers nearer the edge of the knife and thus allow the flats to carry off more as strippings. Wasco.

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### HOLES IN KNIT GOODS

*Editor Textile World Record:*

What is the heaviest yarn that can be knit on a 10-cut rib machine to good advantage, with 36-gauge needles and 24 gauge hook for cylinder and regular 36 gauge dial needles? I am trying to run 10 1/2 yarn and the goods appear full of holes. Can you suggest a remedy? I would also like to have you advise me as to the best way to set a knitting machine to get a good elastic fabric.

Saxon (2443).

It is my opinion that the hole in the sample of knit goods submitted was caused by a knot in the yarn. The range of yarns that can properly be knit on a 10 cut, latch needle rib frame, runs from a singe 10s to 18s. I enclose sample swatch of 10s carded and 12s combed knit on a 10 cut frame with good results. We use 24 hook needle in the cylinder and 36 hook needle in the dial, 36 gauge needles. Caliatura.

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### BREAKING STRENGTH OF COTTON CLOTH

*Editor Textile World Record:*

Do you know of a table or rule for determining the strength of cotton cloth? I appreciate the fact that the count and number of yarn and the twist of same in the cloth must be considered together with the finish in compiling a table of this kind. Canton (2441).

The inquirer does not overrate the difficulty of laying down any working rule. Variations creep in at all points, beginning with the strength of the individual fibers, continuing with differences in the count and twist of the yarn, the sett and finish of the fabric and ending with the comparative moistness or dryness of the sample at the time of testing and the size of the sample tested. Experiments at the Manchester Testing House have shown that on one day a given sample of cotton drill shows nearly 14 per cent. greater strength than upon an-

other. Thus with a relative atmospheric humidity of 44 the average breaking strain of the warp was 521 pounds and with humidity of 82 per cent. the breaking point was raised to 592 pounds. As a less difference than this one may be all-important it is obvious that no rule applicable to fabrics under all conditions could be worth laying down or worth relying upon. Rather than go into all the minute matters necessary to enable the strength to be calculated, it would be simpler to install a machine and let the results speak for themselves.

The breaking strains of fabrics must always be variable, but at least there may be uniform conditions of test and it is evident that the results shown must depend upon these conditions. Broadly there are two recognized types of strength-testing machines. The coiled-spring or Perreaux machine is principally employed on the Continent; the dead-weight or Goodbrand machine in England. Both are made of two or more capacities to suit light and heavy fabrics and the screw in the Goodbrand machine is operated sometimes by hand and sometimes by power. Springs are objected to in certain quarters because of their liability to weaken in use.

In comparing breaking strains it is imperative that the tests should be made upon samples of the same size, but in different quarters different gauges are specified. The respective Departments of the same Government do not in all cases agree as to the size. The vital point is not the total dimensions of the sample, but the dimensions between the jaws. Certain goods for the British Government are to be tested 7 × 6 5/8 in. between jaws, others 9 × 4 in., and so on, but there is probably no scientific basis for these disparities. In the view of those who conduct searching tests very small discrepancies are regarded as important and it is insisted that no thread should be cut. The sample should be cut to a fraction above the required size and reduced by pulling away yarn from the sides until the exact dimensions are reached, thus ensuring that all the threads are gripped at both ends. To avoid atmospheric variations a constant humidity is preserved in the testing laboratory at Manchester by the use of an air-conditioning apparatus. Regent.

I know of no textile analyst who has had the temerity to attempt to prepare a table or rule for the breaking strength of cotton cloth. There are so many possible combinations and permutations among the large number of variables effecting the breaking strength of cotton cloth that it would be a very difficult undertaking to collect reliable information.

Any rule for computing even approximately such values would not be much better than a wild guess. Even the table for the breaking strength of cotton yarns of various counts are only rough approximation and should not be used by anyone in judging the quality of a yarn or in the preparation of specifications for it. Any attempt to extend this to woven fabrics would certainly be misleading.—Dr. D. E. Douty, Mgr., U. S. Conditioning and Testing Co.

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### CONSTRUCTION OF WOOL GOODS

*Editor Textile World Record:*

Could a 3 up 1 down weave be woven on a cam loom with 4 harness and 4 cams on the Crompton cam loom? The cams are in the center of loom in the bottom with treadles.

My customers want 24, 28 and 32 ounce cassimeres. To what size, weight per 20 yards, should the yarn be spun for warp and filling if I put 28 ends per inch in the loom, and how wide should it be in the loom to make a firm piece of cloth, made of Northwest merino wool, 1 1/4 staple, the cloth to finish 56 inches wide. Huron (2442).

There is no difficulty in weaving a 3-leaf twill on a loom fitted with four cams. One of the cams would remain idle, while the other three would be fitted for the particular 3-leaf twill desired. An excellent collection of 3-harness weaves will be found in the Hand Book of Weaves, in the July, 1911, issue of this magazine.

We do not know of any collection of samples such as "Huron" wants. The way for him to get a collection is to keep samples of the fabrics he makes, along with a record of their construction, also to analyze the cloths made by other manufacturers, and keep a record of their construction with samples. Such a collection soon becomes so valuable to a mill that it should be kept in a fire and burglar proof safe. The

"straight line" system of cloth analysis, which we have repeatedly explained, is the best.

"Huron" fails to give the information necessary in order to judge to what size the yarn should be spun and how wide the 24 ounce goods should be laid in the loom in order to make a firm piece of cloth. That depends on the weave used and the finish desired. The size of the yarn is calculated as follows, allowing 15 per cent for loss of weight and 10 per cent for shrinkage in length in finishing, 10 per cent for take-up of warp and filling in weaving, and a loom width of 67 inches:

24 (ozs.) × .90 (100 + 10) = 21.6.
21.6 (ozs.) ÷ .85 (100 + 15) = 25.4 ozs., loom weight.

Assuming that the cloth is to be equally divided between warp and filling, the size of the yarn is calculated in this way:

67 (inches) × 28 ends = 1876 ends warp.
1876 ÷ 90 (100 — 10) = 2084 yards warp yarn.
2084 (yds.) ÷ 12.7 (ozs.) = 1.64 runs warp.

As "Huron" wants 28 picks per inch in the loom, the filling yarn with the same take-up (10 per cent) would have to be the same size, 1.64 runs, in order to give 12.7 ounces of filling.

The grain weight of 20 yards of the yarn is found as follows:

87.5 (constant) ÷ 1.64 = 53.3 grains per 20 yards.

"Huron" should discard numbering yarn by the grains per 20 yards and adopt the run system.

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### STOP MOTION FOR YARN

*Editor Textile World Record:*

Is there a device on the market for trapping ends above a 2 ply? I know there is a stop motion for 2 ply yarn, but I would like to know if there is one for any ply above two.

Dallas (2436).

We build twisters for woolen, worsted or jute yarns with individual trap for each end for three or four-ply work, and very rarely on wide gauge machines for six-ply work. There is no reason, of course, why cotton could not also be run on this type of machine, although it is much more expensive than the usual type of cotton twister. We also build a silk twister which will trap 6 ends, but we know of nothing over 6-ply. On the regular type of cotton twister there is a two-ply stop motion on the market, but nothing for any higher ply.

Saco-Lowell Shops.

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### SHEARING PILE GOODS

*Editor Textile World Record:*

We have sent you under another cover a sample for army officers' sleeping-bags, succeeding quite well in spinning, weaving and raising the goods, but failing dismally in shearing them. The pile seems to slip the knife. What is the right machine for the purpose? Elgin (2431).

The ordinary cloth shearing machine is the only one needed, but it must be fitted with the right knives. "Elgin" has doubtless been using plain cutters on the cylinder of the machine. These are useless for pile goods. What are wanted are file-cut knives, which have cuts like those of a file upon one of their sides. These file marks provide a slight serration of the cutting edge, sufficient to grip the pile and prevent the slippage complained of. With their aid the shearing presents no difficulty at all. Wessex.

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### PRODUCTION OF UNION AND TWO PIECE SUITS

*Editor Textile World Record:*

Please inform me how the production of union suits is supposed to compare with that of two piece goods. Some mills estimate that one dozen suits are equal to two dozen two piece goods. Please let me know if this is right.

Palmer (2435).

It has been claimed by men well up in the trade that the difference would be as two to one, two union suits to one each of pants and vests. It has even been said that the showing would be even better than two to one. When the time spent on one dozen ladies' pants, against a dozen of the same size union suits is considered, the difference will be understood. The difference will be more on the better grades where hand made bands are put on. The difference in prices paid is also quite noticeable; that is, 24 cents for ladies' pants, 12 cents for vests, total 34 cents, while the price of a union suit is 17 to 20 cents. These prices are for finishing only. Prices vary according to style of finish or kind of band used. Taking every-

thing into consideration, I believe the comparative production under ordinary conditions should show better than two to one.

Trenton.

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### HOLES IN KNIT GOODS

*Editor Textile World Record:*

I am sending you a sample of our knit goods bleached in the roll, which shows a number of holes and catches also places where the threads seem to be pulled up into a small loop. We would like very much to have you inform us what the cause of these holes is. Vardry (2437).

Holes usually appear after the bleaching process, so either the guides on the dryer spreaders are set too close or there is a sharp place on the tube or spreader. The pulled thread is on the inside of the cloth and made by a rough burr blade in the stitch wheel. There is a very similar imperfection close to the pulled stitch which is caused by the barb of the needle being a trifle to one side of eye, thereby splitting the stitch.

Massasoit.

I can think of no knitting troubles that would cause these holes and believe that the fabric has come in contact with some sharp object such as a nail or splinter of wood perhaps in the washing or bleaching vats, and has been torn. A very careful inspection of the entire equipment of turning, boiling, bleaching and rinsing may locate the trouble. If the cloth is dryed on an upright dryer, it should be examined closely to see that the defects are not caused by the take-up roll pinching the cloth. The only way to discover and stop troubles of this nature is to follow the product, step by step, through the various processes, making an inspection after each handling. Caliatura.

The holes in the sample of knit goods seem to have been torn while the cloth was run over the dryer. On examining the dryer it will probably be found that there is something that catches the cloth on the inside of the fabric, as the loops of yarn are pulled out. This is probably the outside when the cloth is being dryed. If this is the case whatever catches it will be found on the drying machine; if the reverse is the case the trouble is with the spreader. There is, however, a chance that the holes may be caused by the knitting machine. This can be discovered by examining an unbleached roll. The fact that the loops of yarn all stand in one direction makes me think that the cloth was torn during the last rolling process.

Herkimer.

The holes and bunches in the knit goods are caused by a rough blade in a burr wheel. Count back from the broken stitch on the frame to find which wheel is bad. Do not press too hard on the presser wheel, as the beards will sometimes spring sideways and make holes. The presser wheel should bear just enough to hold the beard of needles firmly against the needle stem. Trenton.

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### DYEING WITH DEVELOPED BLACK

*Editor Textile World Record:*

I have read the reply to the question regarding developed black ("Dyer" 2432) and as I have had trouble similar to this my experience may prove of interest. I have used Zambesi Black V for a number of years on guaranteed goods and have never had a complaint as to fading. It may be that "Dyer" does not keep a uniform temperature in diazotizing and developing. Probably the water is too cold for the two main operations. I have found that by keeping the temperature of the diazotizing and developing baths at 80° F., that the liquor penetrates more completely.

I am making a good black with the following formula:

For 100 pounds of material:
4½ lbs. Zambesi Black.
4 lbs. Common salt.
½ pt. 50% Turkey red oil.
Boil slowly for 50 minutes.
1 Cold Rinse.
2 lbs. nitrite soda.
2 lbs. sulphuric acid.
30 minutes at a temperature of 80° F.
2 Cold Rinses.
¾ lbs. Meta Toluylene.
¾ lbs. 58% soda ash.
30 minutes at a temperature of 80° F.
1 Cold Rinse.

Each operation must succeed the other with as little delay as possible. Finish at 120° F. with a good softener made up with olive oil soap, olive oil and soda ash, using enough to make a good finish. I would suggest that "Dyer" give this a trial and note results. Barton.

### BLEACHING WOOLEN YARN

*Editor Textile World Record:*

Can you suggest any economical method of dyeing small quantities of worsted yarn such as are used in the manufacture of sweater coats? We occasionally have white (sulphured) yarn that gets soiled and it occurred to us that we might be able to build a small dyeing machine to accommodate say 10 to 20 pounds. We would like to make the machine automatic if possible. We thought that a long narrow tank with a large wooden roller at the top and bottom would do the work. The top roller to be driven from our shaft. The water to be boiled by the introduction of steam. Our greatest difficulty would be drying as it would not pay to install an extractor. We would like to have your opinion as to whether you think it would be practical or not and whether you think that an amateur would make a success of it. Does the fact that the yarn has been sulphured white many any difference to the dye? We have had some of our white dyed by our spinners which had become soiled. Mayfair (2423).

The dyeing of small lots of woolen yarn, and odd lots in particular, is not a particularly economical matter to take up, especially on the part of an amateur. An entirely automatic machine is out of the question, for the reason that no such machine could be constructed that would work satisfactorily for small lots, however good such a machine might work if built to handle large lots of yarn.

For dyeing small lots of yarn, of, say 10 to 20 pounds each, the best course to follow is to make use of the usual type of dye kettle, but holding about 60 British gallons (600 lbs.) of water. Such a kettle would be about 24 inches square on the top, and have a working depth of 30 inches of liquor, allowing a few inches for working.

This kettle is to be heated by a copper steam pipe, perforated with holes, but closed by a plug at the farther end. The dye house should have a peg upon which to stretch the skeins after dyeing, and also to twist them to squeeze out the water. As drying is necessary for yarns after dyeing and rinsing, the skeins are to be drained as much as possible, then rinsed, and then given a good twist on the peg with the aid of a small club or piece of broom handle, afterwards spread on smooth sticks so that the air can blow through them, giving them a turn about three times a day. This method becomes necessary as "Mayfair" observes that drying is handicapped as no extractor is available. Regrading and dyeing, it will be best for "Mayfair", if he does not intend to have a dyer, to be guided by the suggestions and instructions that will be given him by the concerns from which he buys his dyes, at the same time remembering that dyeing is a trade requiring long experience over the kettles before good and satisfactory results are the uniform rule. Berwick.

### DEFECTIVE KNITTING

*Editor Textile World Record:*

We are sending you a sample of knit goods made of No. 18 three-ply spun silk yarn. This swatch shows particular defects, forming a sort of oblong ring where the yarn seems to be finer. As the silk runs the long way in the swatch we cannot see how defective yarn could form a small circle from several layers of yarn. We wound some of this yarn, forming these rings, on a blackboard, but cannot find cut places in it where the rings were formed. Uneven yarn should show in the swatch thick and thin places in the same direction as the yarn is running, but not in the form of rings. We would like to have your opinion as to whether these rings are made from defective yarn or poor work on the knitting machine.

Fairview (2458).

This fabric was made on a spring needle flat frame. The defect was caused by not pressing hard enough to clear all needles, thereby holding more than one stitch on certain needles. Perhaps the needle plates are loose enough to allow play in the needles, in which case the presser bar will only press needles back instead of closing the beard.

Trenton.

### SPOTS ON VELVET

*Editor Textile World Record:*

I am having some trouble with dirty places in light shades which occur in the weaving after the looms have been left standing over night. The cloth is soiled for the first 3 to 5 inches. I think it must be due to the reed. After five inches are woven everything is all right. The looms are standing in a separate room and are covered up over night. Can you give me a reason for these dirty places? The goods are woven in double shuttle velvet looms. (2449).

The trouble in this case is evidently due to a dirty reed. Our method of cleaning reeds before going to the loom is to pour benzine into the reed and work it up and down on the warp forcing it to the right and then to the left until clean. Erimo.

# The American Cotton Manufacturers' Association at Memphis

The American Cotton Manufacturers Association went farther Southwest for their annual meeting this year than ever before, honoring Memphis, the great cotton market, with their attendance. The longer journey from the North and from the cotton mill centers in the Carolinas and other South Atlantic States resulted in a somewhat smaller attendance than usual, but a goodly number of manufacturers, including many of the "old guard" who always attend the meetings were on hand and what the convention lacked in numbers, it made up in interest and enthusiasm. It could not be otherwise with the lavish hospitality extended by the Memphis Cotton Exchange, whose entertainment committee, headed by Joseph Newberger as chairman, was indefatigable in seeing that everyone had a good time.

A general feeling of optimism pervaded the meeting and was apparent in conversation with individual manufacturers. It is certainly true that the cotton people in Memphis are feeling very hopeful and have been greatly encouraged by the demonstration of the financial strength of the South which has brought about the advance in price of cotton from the low levels of August and September and changed the outlook in that section from one of gloom to one of cheerfulness.

The convention headquarters were at the Hotel Chisca, a first-class modern hotel, the management of which did everything to make the stay of the visitors most comfortable. The business sessions were held in the ball-room of the hotel.

The ante-rooms of the convention hall were used as reception rooms and offices for the convenience of the members. Through the courtesy of the Memphis Terminal Corporation, every facility was accorded for correspondence; a staff of stenographers was on hand, telegraphic quotations and telephone facilities were provided. W. G. Turner, vice-president and general manager of the Memphis Terminal Corporation, gave his personal attention to the comfort of the visitors and did everything possible for them. In one of the ante-rooms was a comprehensive exhibit of cotton fabrics collected by the Department of Commerce through its foreign representative, Mr. W. A. Graham-Clark. These samples were collected from countries where there were possibilities of extending American trade and details of cost and selling prices were given.

There were only two sessions of the convention, on the mornings of Tuesday and Wednesday, April 13th and 14th. This left the afternoons and evenings of those days free to take advantage of the hospitality provided by the reception committee.

Most of the visitors took occasion to visit the handsome rooms of the Cotton Exchange. On Wednesday noon after the adjournment a formal visit to the Exchange was paid by the officers and leading members of the Association. The Exchange room was decorated with bunting and many members were on hand to greet the visitors.

The business sessions were presided over most ably by President Hickman, whose annual report, showing the unusual activities undertaken during his term of office, proves him to be the "live wire" president that was

predicted at the time of his election. Mr. Hickman has a magnetic personality, is a good presiding officer and the business was conducted expeditiously and smoothly. The technical papers were not discussed at such length as might have been hoped, but this Association has always taken more interest in the legislative and business questions of the moment than in the discussion of technical problems. When the various committees presented their reports there was no lack of discussion, in which President Duncan of the National Association of Cotton Manufacturers took an active part. A number of the questions under consideration and the resolutions adopted were of mutual interest to both Northern and Southern Associations.

A resolution endorsing the encouragement of an American Merchant Marine under private ownership was discussed at some length but with little difference of opinion on the part of the members except as to details. The American Cotton Manufacturers Association has several times in the past gone on record as being in favor of such legislation and in adopting again a resolution exactly similar in tenor to the one which was passed at the Boston meeting of the National Association, the whole cotton manufacturing trade stands together as being in favor of Government assistance for a large American merchant marine, which is so vital to the prosperity of the cotton business.

SCOTT MAXWELL, NEWLY ELECTED PRESIDENT OF THE AMERICAN COTTON MANUFACTURERS' ASSOCIATION

The restrictions on the importation of Egyptian cotton were discussed and some

misunderstandings in regard to the attitude of the government in this matter were set right and also an explanation as to the alleged discrimination between different sections of the country. Southern manufacturers now have a clearer understanding of the bearing of this question and its importance to the South as well as to the North and it is believed there will be no further friction in complying with the new regulations promulgated by the Government concerning the destruction of the waste and motes.

A discussion of Mr. Klipstein's paper on "Dyestuffs" was anticipated, but in view of the rather delicate situation and the fact that the dyestuff question was being handled by a special committee composed of Messrs. Caesar Cone, T. H. Rennie and W. A. Irwin, is was suggested that the matter should be left in the hands of this committee without discussion.

The election of Scott Maxwell as the new president was hailed with great applause. He is one of the most popular members of the Association and his graceful speech of acceptance was most cordially received.

One of the pleasing incidents of the meeting was the presentation to President Hickman of the President's Medal, which all retiring presidents receive. The selection of

T. I. HICKMAN, RETIRING PRESIDENT OF THE AMERICAN COTTON MANUFACTURERS' ASSOCIATION

T. H. Rennie of Pell City, Alabama, to make the presentation speech was a particularly happy choice in view of Mr. Rennie's former connection with Mr. Hickman at the Graniteville Mills and their close friendship since. Mr. Rennie made a very graceful speech in which he congratulated Mr. Hickman on his successful administration and wished him many years of continued usefulness and help. Mr. Hickman made a graceful acknowledgment and took occasion to pay a tribute to Secretary C. B. Bryant whom he declared to be the main stay of the Association, being a permanent fixture while presidents may come and go.

The arrangements for the entertainment of the members and visitors were carried out most smoothly. The courtesies of the leading clubs of the city were extended to the visitors who received cards of invitation upon registration. On Tuesday afternoon the entire party visited the Memphis Cotton Terminal Plant, several miles from the center of the city at South Memphis. A special train took the party directly to that part of the immense plant where the cotton is first received and they followed the bales on their journey by trolley railway on the gravity system until they arrived at the storage sheds to which each bale had been assigned. The system has been so carefully worked out that manual labor is reduced to a minimum. The cotton moves itself to a great extent and a switchman stands at the entrance to each yard so that each bale may be switched to its proper destination. The fireproof storage warehouses accommodate 1,000 bales each, although there are several large F. O. B. buildings of 10,000 bales capacity in which mixed lots are stored. All the buildings are thoroughly equipped with automatic sprinklers and insurance rates are thus brought down to a minimum. The system is so perfect under the management of President Mallory and General Manager Turner that the exact location of any particular bale of cotton is known at the office and its entire history from the moment of receipt until it leaves the terminal is on record. In connection with the storage warehouse are several large compresses. All the work necessary to be done on a cotton bale from the time it leaves the railroad car coming from the plantation until it is ready for shipment by rail or steamer is thus performed in this plant under the best possible conditions.

On leaving the terminal the party again embarked on the special train which took them to the river bank where the excursion steamer "Idlewild," thoroughly equipped for the voyage down the river, was waiting for them. To many this was the first experience of a water trip on the great "Father of Waters," and as the day, like all others of the convention, was perfect, it was most enjoyable. Light refreshments were served and music, dancing and sight-seeing filled in the time until the return to the city at about nine o'clock.

On Wednesday afternoon automobiles were provided and a drive taken through the beautiful park systems and residential sections of Memphis which compare favorably with those of any city in this country. The foliage was just coming out and the city was at its best.

The several hundred members, guests and hosts, finally ended their drive at the Tennessee Country Club and the convention was brought to an end by a banquet tendered by the Memphis Cotton Exchange to the visitors. It was a most enjoyable affair and served as a climax to the meeting. Informal speeches were made by Messrs. Newburger, Hickman, Duncan and Maxwell.

The striking view of Memphis by night is taken from the menu card of the banquet.

Arrangements had been made by railroads from Memphis to the East to stop at the Country Club for those members who desired to embark there and Thursday morning found them on their way home. Several parties stopped off at Chattanooga and visited historic points of interest in that city.

A party of fourteen Northern members and guests came through together in a private car from New York to Memphis having a delightful journey through the valleys of Virginia and the mountains of East Tennessee. At Memphis the party split up in different groups, each returning as he desired.

The place for the next convention has not yet been decided by the Executive Committee to whom it has been referred. Invita-

tions were received from Birmingham, Cincinnati and other Southern cities.

The following new members were elected: A. Culberson, Jr., Supt. Dickey Cotton Mills, La Grange, Ga.; Arthur W. Harris, Am. Warp Drawing Machine Co., Atlanta, Ga.; W. Montgomery, Supt. Summerville Cotton Mills, Summerville, Ga.; W. B. Munson, Jr., Treas. Denison (Tex.) Cotton Mills Co.; Ernest Rees, Elk Cotton Mills, Fayetteville, Tenn.; H. C. Ray, Pres. Stevenson (Ala.) Cotton Mills; W. D. Striplin, Mgr. Striplin Cotton Co., Corinth, Miss.; Walter S. Taylor, Sec. Rhodiss (N. C.) Mfg. Co.; John W. Wade, Pres. Howell Cotton Co., Birmingham, Ala.; W. H. Wylie, Jr., General Electric Co., Charlotte, N. C.

The committee of business men representing the city and the Memphis Cotton Exchange, which provided entertainment for the visitors, must have felt gratified with the success of the meeting. Never was a city's hospitality more cordially extended or more amply provided. This committee was comprised of Joseph Newburger, Chairman; B. B. Beecher, E. W. Porter, J. M. Beley, W. G. Turner, A. H. Frank, J. A. Flippin, G. MacGregor, John S. Williams, Hugh Pettit, Paul Towner, Paul Dillard, G. F. Gunther, D. H. Crump, F. M. Crump, E. G. Gibbons.

The following resolutions were unanimously adopted:

Whereas, The interests of manufacturers and merchants of the United States, to the extent of their economic ability, require an equal right with those of all other nations to the trade of the world; and

Whereas, The United States has by expressed statement declared the principle of equal trade privileges to the great commercial market of China; and

Whereas, It is feared that influences for some years exercised upon China and now being brought to bear upon the Government of that country with increased pressure may result in a loss to citizens of the United States, manufacturers making goods suitable for, and merchants engaged in the trade with China, of the equal right to trade with the people of China; therefore be it

Resolved, That the interests of the foreign commerce of the United States require a new statement of the right of equal opportunity to trade in

MEMBERS AND GUESTS AT THE PLANT OF

the markets of the world, and that, particularly as to China, the principle of the "Open Door" be asserted anew and in unmistakable terms; and be it further

Resolved, That copies of these resolutions be transmitted to the President of the United States, the Secretary of State, the chairman of the Committee on Foreign Relations of the United States Senate and the chairman of the Committee on Foreign Affairs of the House of Representatives.

Resolved, By the American Cotton Manufacturers Association, that as a result of one of the most impressive lessons of the great European war, the United States should adopt prompt and vigorous measures to secure the establishment by private enterprise of lines of American merchant steamers to the chief ports of the world so that this country may no longer be dependent for nine-tenths of its ocean carrying trade on foreign ships and foreign ship owners.

Resolved, That this association regards an adequate American marine as indispensable to the full development of American commerce and as an essential auxiliary of the national defense in time of war, and believes that by all proper methods these important facts should be impressed upon the American people and their lawmakers.

Resolved, That this association heartily endorse the action of the Horticultural Department in its effort to prevent the importation of the pink boll worm into the United States, and that we urge all manufacturers to agree to the proposition of the Department that all picker waste and motes from such cottons be burned daily.

Resolved, That a standing committee of not less than three members of the American Cotton Manufacturers Association be appointed to confer annually with the management of textile schools on their curriculum and other matters affecting the qualifications of textile graduates.

The election of officers resulted as follows:

President, Scott Maxwell, Cordova, Ala.; vice-president, John A. Law, Spartanburg, S. C.; secretary and treasurer, C. B. Bryant, Charlotte, N. C.

THE MEMPHIS TERMINAL COMPANY

New members of the board of governors: Caesar Cone, Greensboro, N. C., chairman; J. J. Bradley, Huntsville, Ala.; Eugene Holt, Burlington, N. C.; George E. Spofford, Augusta, Ga.; Paul J. Marrs, Henderson, Ky.; Craig S. Mitchell, Philadelphia, Pa.

## REPORT OF TEXTILE ALLIANCE

New York, March 25, 1915.

Mr. C. B. Bryant, Secretary the American Cotton Manufacturers Association, Charlotte, N. C.:

Dear Sir—I regret very much that I shall not be able to attend the meeting of the American Cotton Manufacturers Association, and submit the following report to be read by you if you so desire:

The annual meeting of the Textile Alliance, Inc., was held on the 2d of March. The officers were

reelected as follows: Albert M. Patterson, president; Ceasar Cone, vice-president; J. J. Nevins, secretary and treasurer; and directors as per the following list: A. M. Patterson, John P. Wood, Dr. August Hunziker, William A. Mitchell, J. J. Nevins.

The president made the following report of the business of the year:

"Samples have been collected of substances sold in the trade under trade names which appeared to have been overvalued. Five analyses were made for the account of the Alliance, and others were furnished for the Waterloo Woolen Manufacturing Co. and the Stillwater Worsted Co. It is intended to publish these at a convenient opportunity.

"The investigations in the dyestuff trade have been hampered by the outbreak of the war. A detective agency was engaged, which submitted a large amount of information. Some of it is interesting and should be published, but there is contained therein nothing on which any prosecutions could be obtained. A man was also employed to work for two months, at a very moderate expense, attempting to accomplish a specific object. This object, however, was not obtained. On the whole, this phase of the Alliance's work must be considered a failure.

"The Alliance was glad to be of use in connection with the importation of dyestuffs arranged by Mr. William A. Mitchell, who went to Germany as the authorized representative of the two cotton associations. In connection with the plan devised by Mr. Charles H. Burr, counsel, it was necessary to charter an American steamship, and this was done individually by the president, acting in conjunction with certain other individuals.

"In connection with the above event, Mr. Burr was obliged to go to London, and while there entered upon negotiations with the Board of Trade, through which the embargo on shipments of wool to the United States was raised in favor of the Textile Alliance. This has developed into a very important and interesting work, as it is expected that all of the wool imported from the British Empire into the United States during the continuance of the war will be consigned either to the president of the Alliance or to custodian bankers, to be distributed under the supervision of the Alliance and subject to such guarantees as the British Governments may impose. For the present it has obscured the other issues for which the Alliance was incorporated."

The cooperation of the cotton associations and the silk associations through their directors on the Alliance board is greatly appreciated by the woolen manufacturing interests.

Respectfully submitted,
Textile Alliance,
A. M. Patterson, Pres.

## REPORT OF NATIONAL COUNCIL

By T. I. HICKMAN, Chairman

During my administration there has been only one meeting of the National Council, which was held in New York, July 4, 1914, at the Engineers Club. There were present from the National Association: President Albert Greene Duncan, Edwin Farnham Greene, Charles T. Plunkett and Secretary C. J. H. Woodbury; and from the American Association, President T. I. Hickman, Stuart W. Cramer, L. D. Tyson and Secretary C. B. Bryant.

### WORK OF TEXTILE CUSTOMS BUREAU

Mr. Duncan made an interesting statement regarding the organization and work of the Textile Customs Bureau and the Textile Alliance, being a communication from Director Wood, of the Customs Bureau, all of which was generally discussed by those present and it was agreed that the report of Mr. Wood, as to the progress of the work, was satisfactory, details of which cannot naturally be given here as a great deal of it is more or less at present confidential to the National Council. A number of undervaluations were protested, mainly that of the Rosemary Manufacturing Company, and, while the suit in which the alliance was engaged was lost, it will have ultimately a salutary effect. I might say in passing that this suit cost practically as much as the whole of the appropriation we made to the Textile Alliance. It gives us pleasure heartily to endorse the work of this bureau, and we think our appropriation should continue.

### EXPORT TRADE NECESSARY

Your chairman spent several days in Washington consulting Mr. Baldwin and other officers connected with the Department of Commerce, regarding our export trade and as certain recommendations have been made in his annual address, it is hardly necessary to present any further details on thus subject. The necessity of enlarging our export trade, however, is apparent to every one connected with our two associations and we think that every endeavor possible should be made to this end.

## ADDRESS OF T. I. HICKMAN, PRESIDENT

To the Members of the American Cotton Manufacturers Association:

It has been a year of tremendous importance—not only from our own standpoint as manufacturers, but from the standpoint of the world's history. I doubt if any former president of our Association has had the grave problems to face which I have had.

At the beginning of this world's war, the necessity of helping the mills to get business was important, and I saw nothing that I could do which would help the Association more, than to conduct a campaign of education on the uses of cotton goods. I started this about October, and delivered a number of addresses over the South, and was warmly received everywhere. I tried to lead the people from the false slogan of "Buy-a-bale-of-cotton" to the sensible solution of consumption of cotton by the use of cotton goods—and in this I believe that we have met with a fair share of success. The matter has now obtained nation-wide advertizing, and I believe there are now more people wearing cotton goods, and considering the wearing of them, than ever before in the history of our business.

One of the greatest factors in the dissemination of knowledge about cotton goods, was the splendid work of the Rotary Club of Birmingham, Alabama, when they formed the Cotton Products

Consumers League of America, to whom we all owe a debt of gratitude.

The newspapers of the country have also been very kind to us in this matter. They have published everything they possibly could, and in most instances without any cost to our Association.

The Cotton Goods Exhibit given at the Partridge Inn, Augusta, Ga., March 4th and 5th, and gotten up by our Association, was a revelation to everyone who attended. Augusta being a Winter resort of national fame, people from all parts of this country and Canada (and some from Europe), were present at the display, and manifested great interest. To my mind, this was one of the most splendid opportunities the manufacturers have ever had of exhibiting their products, and many of the manufacturers sent beautiful displays. We showed every character of cotton goods, suitable for household purposes and also from the very coarsest fabrics as used in automobile tires, up to the very finest wearing materials retailing for several dollars a yard. Many of these cloths were made up into garments and exhibited on living models—the men wearing cotton clothes, from a beautiful and attractive suit worn by L. L. Arnold, editor of "Cotton" (in Atlanta), down to the khaki uniforms worn by firemen and policemen. The ladies were dressed in lovely cotton gowns costing anywhere from one dollar to fifty dollars, according to the character of material used. Our Association offered several prizes for the cheapest gowns, and you would doubtless be surprised to know how well these look made up of cloth costing less than a dollar.

I am frank to say that the war has not brought about the splendid business for which we all looked. At the beginning of this war, it was predicted that the cotton mills of this country would be running day and night, and while conditions have materially improved with us, they have not by any means reached the high-water mark that we all anticipated. In fact, a good many of the mills are today running on short time, and I am sorry to say that from what I can learn, not very many of them are doing a profitable business. However, it does seem that the goods which all of us made during the past year, have been consumed by somebody.

There is a tremendous amount of complaint as to the alleged "faulty distribution" of our goods. A number of the best-posted men in this country believe that a great deal of the blame for this lies with the commission merchants in the large cities and the lack of unity which prevails among them. Some people go so far as to claim that the jealousies existing between these merchants has caused them to sell goods at times regardless of the interests of the mills. They also claim that instead of the agents seeking trade they allow trade to seek them through the channels of brokers or otherwise (these brokers having little or no interest in the mills, their sole purpose being to make sale). On the other hand, we do know that there are a number of reputable commission merchants who have agents in foreign countries, notably China and South America.

The New York Times, under date of March 21, 1915, has a long article on this subject, under the heading: "Trade Abuses Due to Lack of Union," and it goes on to say: "It would be difficult, according to an officer of one of the leading dry-goods commission houses, to find any trade in which there is less cooperation for the abolition of trade abuses, than among the manufacturers and commission firms which are located in the Worth Street district. This lack of cooperation, he says, is in one way or another costing the firms in question a good deal of money every year, and the stress of competition will hardly admit of any one house playing the part of a commercial Billy Sunday and endeavoring to do away with business sins that should be summarily dealt with.

One of our best-posted manufacturers, who is also a leading-spirit in this Association, says that undoubtedly we are the poorest merchants in the known world—and when he says "we," he means all of us, manufacturers as well as agents.

Some people point to the fact that while many commission merchants have grown enormously rich, the condition of the mills has not improved. On the other hand, a great many people claim that the fault lies with the mills themselves in not uniting on some reasonable basis. While the Sherman anti-trust law stares us all in the face, yet it does seem to me that we are just as guilty as the commission merchants, in our lack of organization. This Sherman law does not permit either the agents or the mills to form a trust, but at the same time, the United States Government does not expect the agents to sell goods at less than the cost at which the manufacturers can produce them. Neither does it expect the mills to make goods and lose money thereby—which many of them have been doing and are doing at the present time. There is a great fault somewhere, and whether or not it is all due to the agents or all due to the mills, I am unable to say—though I am inclined to think that in many instances they are both at fault.

One great trouble with the mills of this country, and particularly Southern mills, is the burden of debt which they are carrying, and which compels them to sell goods at times in order to realize money with which to carry on operations. Of course a great deal of this money has to be borrowed from their commission merchants, and they at times get tired of carrying goods and wish to reduce their indebtedness.

We are going to have an address made at this meeting by a man who is posted on all of these matters, and he will not only tell us about the evils of the situation, but suggest a remedy—and I hope that his remedy will be one that will be valuable to all of us, for we certainly do need one.

Without taking sides in this tremendous controversy, may I take the liberty of saying that it is high time that we were all "getting together" in some common-sense way, for the protection of the mills. After all, the commission merchants naturally want their mills to prosper rather than have them go into the hands of the courts.

A great deal has been said about the necessity of securing more foreign trade. We ought to do a much larger business with Cuba and South America—though the main trouble with the South American trade at present seems to be lack of knowledge as to exactly what they want (so that we can go ahead and make it for them); and the

necessity of formulating some plan whereby we could carry their accounts for the long periods which Germany and England have heretofore done, or to finance these accounts in such way as we could handle them. With reference to this South American trade, we are as yet touching only the countries bordering on the Caribbean Sea (where our trade is increasing somewhat), but of Argentine and Brazil we know scarcely anything, and the business in these two countries ought to be a very important matter to us.

Our business with Africa and the Red Sea ports should also be greatly enlarged, and we should send agents to these important countries to sell our products. I wish that some of our manufacturers could themselves go in person, and I think we would do well to join the National Association of Manufacturers in sending representatives to these countries as well as to South America and Cuba.

I am looking with a great deal of concern upon the attack upon China by Japan, and the consequent increased injury to the commercial interest of the United States. A plan to arouse those interested, is now under way, and we are being asked to help. It seems to me that we could do nothing better than to adopt the resolution which was recently passed by the Cotton Goods Export Association—a copy of which our Secretary has.

For the last two years we have been worrying ourselves a great deal about the tariff—some of us think necessarily and some unnecessarily. There is a wide variation of opinion in this matter. There is no question about one thing, and that is that the tariff was reduced too much, and if Congress had adopted the suggestion of our Association instead of its own ideas, we would doubtless have been much better off. The war is naturally preventing any large importation of goods to interfere with us now, and it will probably be many days to come before we will have anything to worry us in this line. When peace is established, however, we certainly should have, for the benefit of the manufacturers and business-men of this country, a tariff-commission—men who understand and know the business, and know how the tariff ought to be regulated with reference to everybody concerned.

I have always believed in the necessity of a nation subsidizing its merchant marine. This was drilled into me by my good old father when I first started into cotton manufacturing, thirty odd years ago, and I am just as firmly convinced as ever of the necessity of subsidizing ships. England and Germany have built up their enormous trade facilities in this way, and I hope the time will come when our government will see the wisdom of adopting this policy. I do not know that I would go so far as to say that I believe we ought to have government ownership or merchant marine, and I think probably it would be inadvisable for our country to buy all of the foreign vessels and own and control them, but I do believe that if we are now going to undertake any tremendous amount of foreign trade, we must prepare for it by having ships in which to haul our products—and the only way we can get people to invest their money in these steamships until our foreign trade is firmly established, is to have government aid. When this is done, even when the war is over, we can compete without any difficulty with any of the foreign countries which have heretofore had this great advantage over us.

"Build me straight, O Worthy Master,
Staunch and strong—a goodly vessel
That shall laugh at all disaster,
And with wave and whirlwind wrestle."

I would respectfully suggest that our campaign of education be continued. I do not know of any better way that we could do this than to adopt a suggestion made to me by a prominent railroad official, to the effect that the manufacturers should send out a car with exhibits of their products, all over the country and particularly in the West—this car to be accompanied by a railroad man, a moving-picture man, a manufacturer and two capable women exhibitors. Moving-pictures of the cotton goods exhibit could be shown at any of the moving-picture houses free of charge, the day preceding the arrival of the car in each town, with the announcement that at a given place the car would be stationed and make an exhibit free of cost, and then the car could stay in the various towns any length of time that might be thought advisable. I firmly believe that numbers of people all over this country would adopt the use of cotton materials if they knew more about them. The West seems to know very little about cotton goods as compared to the South and East. The railroads would probably haul this car free of cost, if our two great Associations would stand the expense of equipping same—which I estimate would be comparatively small; from $10,000 to $15,000 for a campaign of education for four months.

Along this same line, I quote from a letter written by Mr. Herbert N. Casson (an American man), who is the London correspondent of Messrs. Henry & West, Bankers, of Philadelphia. He says: "What is the matter with the United States? Why are the American factories not running night and day? Why are the railroads not opening up new territories and getting ready for the millions of immigrants who have already made up their minds to leave Europe as soon as the war is over? Why are there not fifty American drummers in London right now, trying to sell $200,000,000 worth of American goods in place of the goods that were bought last year from Germany and Austria? Why have advertisers become quitters, just at the time when their advertisements were most needed and most effective in cheering on the business forces of the United States? If I could afford it, I would charter the Mauretania and Lusitania, and convey a party of 5,000 American advertisers to Europe for a trip of education. I would give them a week in London, a week in Paris, and a week in Antwerp. I would let them look at the United States from the scene of war. I would give them a look at real trouble. I would let them see trains, ten at a time, five minutes apart, packed with the maimed and the dying. Then, when they began to understand to some slight extent, the magnitude and awfulness of this war, I would say to them: 'Now go back and appreciate the United States. Realize your oppor-

tunities. Don't start digging trenches when nobody is firing at you. Don't fall down when you have not been hit. Don't be blind to the most glorious chance you have ever had in your lives. Go back and advertise. Get ready for the most tremendous business boom that any nation ever had. Build your factories bigger. Train more salesmen. Borrow more money. Go ahead, and thank God that you are alive and that your family is alive, and that you are living in a land that is at peace, at a time when nearly the whole world is at war."

Many of the commission merchants in the large cities, and the vast majority of the cotton mill presidents (most of whom I know intimately) are safe, sane and conservative men, and for this very reason it does seem to me a great pity that our business is being conducted in such an unsatisfactory and haphazzard manner, with absolutely no unanimity of action whatever on the part of these great interests, representing as they do, an enormous number of stockholders, four hundred thousand employees and many millions of dollars, and in its wide interests being one of the greatest lines of business in the United States. Therefore there should be, there ought to be, and there must be a change in the prevailing conditions. The commission mercants should form an organization for mutual advantage and protection, and there should be a more closely knit organization among the mills—and then probably a mutual organization between the mills and their agents, and a firm determination on the part of everybody concrned, that the mills must make a living out of their enormous business, and properly take care of their stockholders, employees and others deeply interested. I believe that sensible, conservative men on both sides of this controversy are anxious to see all of this come about. In addition to all this, let us adopt suggestions along the lines as contained in the extracts from the splendid letter which I have quoted above—urging us to go forward and take part of this export business which is lying right at our doors and awaiting on us for its development.

Now that I have finished with all of these matters, some of which seem to be in a discouraging tone, I want to say without any hesitation that I am an optimist on business for the future. I believe that ultimately this war will result in tremendous business for the United States and that everyone who manufactures anything, will have all that they can do.

Finally, may I take this occasion to thank the officers and members of the Association for the very cordial support they have given me during the past year, and to assure them that while the work has been strenuous, it has been a work of infinite pleasure because it has brought me into association with so many capable and interesting men. This is a great Association but it could be made greater if we would bring ourselves into closer association with each other on all matters of mutual interest—especially the matter of the cost of goods, and while this would naturally differ with some mills in some locations, it would be easy enough for the manufacturers to know when the price of goods reaches a point at which to sell would mean no profit (or certain loss), and we should formulate some plan to guard against this situation I would be the last man in the world to advocate anything which would be improper or illegal—but "self-preservation is the first law of nature." If we could unite the various interests of our business and uphold the hands of the new administration which will succeed me, and make an earnest effort to abolish some of these trade abuses, in my humble judgment we would emerge from the gloom of depression and the shadows of hesitation, into the sunlight of hopefulness and sound business principles.

"After a day of cloud and wind and rain,
Sometimes the setting sun breaks out again
And touching all the darksome woods with light,
Smiles on the fields until they laugh and sing"

## THE PRESENT DYESTUFF SITUATION

BY MR. E. C. KLIPSTEIN, New York

At the outbreak of the present war, there was a two months' supply of dyestuffs in the United States. From the first of August to the end of December, the importations of dyes were practically normal, so that, on January 1st, there was still a supply of dyes in the country for two months. Since January 1st, the importations have been decreasing and the reserve supply, therefore, is gradually disappearing. From the present time forward the importations will practically cease, so that it is now a question of weeks until the reserve supply becomes exhausted and the textile industries will be brought face to face with a real famine in Coal Tar Dyes.

I attach a statistical table, showing the imports of the three chief classes of Coal Tar Dyes (Alizarine, colors and dyes, and Indigo), from which it appears that the average monthly quantity of Alizarines and Indigo for the years 1913-14. was 1,101,631 pounds, while for the last five months of 1914, from August to December inclusive, it was 1,666,944 pounds, so that we actually imported in the last five months of 1914 an average monthly supply, which exceeds the two years monthly average by 65,313 pounds or 5.9 per cent. On the other hand, the average monthly value of the three classes of dyes above mentioned was, for the two years, 1913-14, $791,374, while for the last five months of 1914, August to December, it was only $772,605, a decrease of $18,769, or 2.42 per cent. This difference in value was due to the decline in the prices of dyes during 1913 and 1914.

Such being the case, the panic which seized the dyestuff consumers in August, and has gradually augmented in force since, would seem to have been injustified. It was, however, very logical, being based on actual conditions:

First—The chief raw materials for the dye industry are also the chief raw materials for explosives, and nations are willing to pay more for killing men than for dyeing their clothing.

Second—The sudden advance in the cost of living, the increased cost of freight and insurance the lack of labor caused by the mobilization of armies, brought about a sharp advance at the source of supply of all dyestuffs, and, therefore,

necessitated a material advance in prices to consumers everywhere. The situation in Germany is expressed by the following circular recently issued by the whole body of German coal tar dye makers:

> Owing to the increased cost of raw materials, also the reduction of our working force by one-half on account of service in the army, the reduction of our output for lack of foreign sales, which means the doubling of our overhead charges, we are compelled to materially advance our prices. The advance in raw materials includes coal tar products, sulphuric, nitric and hydrochloric acids. The cost of

E. C. KLIPSTEIN

> production is further increased by the strenuous measures taken by the German Government to insure supplies for the army.

(Signed)

Actien-Gesellschaft fuer Anilin-Fabrikation, Berlin.
Badische Analin & Soda-Fabrik, Ludwigshafen am Rhein.
Leopold Cassella & Co., G. m. b. H., Frankfurt am Main.
Chemikalienwerk Griesheim, G. m. b. H., Frankfurt am Main.
Chemische Fabrik Griesheim-Elektron, Frankfurt am Main.
Chemische Fabriken vorm, Weiler-ter Meer, Uerdingen am Rein.
Farbenfabriken vorm, Friedr. Bayer & Co., Leverkusen bei Coeln a/Rh.
Farbwerke vorm. Meister Lucius & Bruening, Hoechst am Main.
Farbwerk Muehlheim vorm. A. Leonhardt & Co., Muhlheim am Main.
Anilinfarbenfabrik Carl Jaeker, G. m. b. H., Duesseldorf-Derendorf.
Kalle & Co., Aktien-Gessellschaft, Biebrich am Rhein.
Wuelfing, Dahl & Co., A.-G., Barmen.

The German Government has put very severe restrictions on the exportation of dyes. Dealers are prohibited from exporting at all, while manufacturers are only allowed to ship to former customers and in quantities not greater than formerly used.

England promptly placed an embargo on the exportation of coal tar products, in order to conserve the supply for her own factories. As she had depended on Germany for about ninety per cent. of her consumption of dyes, the absolute cutting off of the German supply at once precipitated a real dyestuff crisis. She possesses, however, several large plants, which produce the raw materials, such as aniline oil, nitro-benzol, the diamines, etc. She has one alizarine plant, one indigo plant and two large plants capable of producing a large variety of finished dyes. All these plants are being worked to their fullest capacity and also being enlarged. Nevertheless, the seriousness of the situation in England may be judged from the fact that ordinary natural indigo is today selling at $3.00 per pound. In order to hasten relief the British Government is considering ways and means to assist the manufacturers to increase their production of dyes to such proportions as to make England independent of the world.

Very much the same state of affairs exists in France, Russia and Japan, which are all large consumers of dyestuffs.

A recent issue of "Commerce Reports" has the following to say about Italy:

> "It is rather surprising to learn that there is a shortage of dyestuffs in Italy, for one would have thought supplies could have been obtained from both Switzerland and Germany. It is possible, however, that Italian dyers are not prepared to pay the extremely high prices which prevail in England at present, so that the Swiss colors are virtually all finding their way to other markets, while transport difficulties may be preventing the delivery of German dyestuffs. The position is evidently serious, for at a meeting on the subject, just held in Milan, it was stated that many dyers had been forced to close their works entirely on account of lack of dyestuffs, while most of the others were on short time. It was proposed to attempt to establish the manufacture of dyestuffs in Italy. Special reference was made to the English scheme, and it was considered that one on the same lines would be suitable for Italian conditions."

It may be mentioned that Italy, like England, has no duty on dyes, but unlike England, she does

not produce the raw materials. In this respect Switzerland resembles Italy, and yet, next to Germany, Switzerland is the largest producer of coal tar dyes, including indigo. Under ordinary circumstances, the Swiss could have produced all classes of dyes insufficient quantity to have materially mitigated the severity of the impending famine—but just here is shown the importance of producing the raw materials in the country making the finished dyes. Switzerland has no coal, and, therefore, no coal tar. For her raw materials she is dependent on Germany and England.

When she began the manufacture of indigo, she insured her supply of raw material, aniline oil, by purchasing The Clayton Aniline Company of Manchester, England, whose chief manufacture is aniline oil. The raw materials for a large proportion of the other dyes produced, were purchased from Germany. At the outbreak of hostilities, the German Government prohibited the export of raw materials to the Swiss dye works, except under a guarantee that none of the finished dyes should be shipped to any country at war with Germany. This guarantee the Swiss refused to give, and, therefore, had to discontinue the manufacture of a great number of dyes. The British Government cut off the supply of aniline oil by placing an embargo on its exportation, thus forcing an entire suspension of the Swiss dye works. Subsequently, however, an arrangement was reached by the Swiss with the English Government permitting the exportation of aniline oil and other raw materials to Switzerland, thus enabling the Swiss to resume the manufacture of Indigo and such other dyes as can be produced from such raw materials as England can supply—and that is what the Swiss are doing today.

In the United States there are four factories capable of producing a limited number of dyes, but they must depend for a part of their raw material on Germany, and are, therefore, very much restricted in their production. Owing to the enormous demand for tuluol, benzol, picric acid, etc., caused by their use, at high prices, for explosives, the coke producers of the United States are largely increasing their capacity to recover the by-products of the coke ovens, from which all these raw materials are obtained.

The necessary installations are being pushed as rapidly as possible, so that in time, our dye manufacturers will be able to obtain, or produce, the chief raw materials needed. But the erection of the necessary plants is always slow, and at best, we must wait many months for any relief by the American dye works. Altogether, we are now apapproaching the supreme test of our resourcefulness.

During the past eight months, we have been asked a thousand times why the United States, England and France, each possessing an abundant supply of raw materials, do not make their own coal tar dyes As England is a free trade country, and France and the United States are high protectionists, the result cannot be charged altogether to the tariffs of these countries. England, today, without any tariff, is really in a better position than either the United States or France with highly protective tariffs.

Evidently, there is something else back of this remarkable phenomenon, and that something is to be found in the patent laws of all three countries. Commencing with the patent on alizarine and ending with the patents on synthetic indigo, all three countries have furnished Germany with the means of monopolizing the coal tar dye business. On the money made out of patents obtained in these three countries, Germany has accumulated the capital which enabled her to build the immense plants, which are the wonder of the world, and the controllers of the dyetsuff business today.

An Englishman, Perkins, discovered aniline dyes; an English firm, Brooke, Simpson & Spiller, together with a French firm, A. Poirrier & Co., of Paris, first became prominent as manufacturers of aniline dyes nearly fifty years ago, and yet, today, Germany controls the coal tar dye industry. In order to change this condition, all three countries must change their patent laws.

As concerns the United States, however, we must still place much of the blame for this anomalous condition on our tariffs. Since 1862 this country has been avowedly controlled by the protectionist principle of building up American industries by means of the tariff. During the past forty years, we have raised our tariffs almost to the point of prohibition in order to establish home industries, and yet the coal tar dye schedule has been so manipulated as to destroy the industry instead of building it up.

I am afraid that this lamentable result must be attributed largely to the textile manufacturers of the United States themselves, because in their desire for free raw materials, they have aided the European dye-maker and patent owner in killing off the struggling coal tar dye industry in the United States. This is a point which I do not propose to argue, but simply content myself with appending an abstract of the United States tariffs on cotton and dyestuffs since the foundation of the Government. From this it may be seen, that while the duty on the manufactures of cotton has steadily gone up, the duty on dyes has steadily gone down, until nearly 50 per cent. of the coal tar dyes are in the free list.

This policy was all right when indigo and cutch and cochineal and logwood and fustic came from tropical countries and could not possibly be produced in the United States. Although it helped the foreign producer by broadening his market, it did no harm to anv American manufacturer. But the situation changed entirely on the advent of synthetic dyes, which can be produced here as well as in Europe. To put synthetic indigo and alizarine in the free list is exactly equivalent to giving the foreign dye maker protection to the amount of the duty remitted.

Just how the present situation has been brought about, may be seen by referring to the public hearings before the Congressional Committees, which are public property.

On Tuesday, March 19th, 1912, the Senate Finance Committee was giving hearings on the proposed Underwood tariff bill, putting a duty of 10 per cent. on indigo and alizarine dyes. A

representative of one of the German dye-makers, expressed himself as follows:

> As an importer of aniline colors, I am in favor of a reduction (of duty), for the benefit of American (Cotton?) manufacturers, especially indigo. Ninety-eight per cent. of the indigo used is synthetic, which is controlled absolutely by patents, and cannot be produced in the United States on account of patents.

Another German manufacturer of indigo wrote the following brief to the same Committee:

> The purpose of this letter is to briefly call your attention to two paragraphs on the free list: Section 487, alizarine, natural or artificial, and dyes derived from alizarine or from anthracene; Section 592, indigo (meaning vegetable and synthetic).
>
> We sell these products to the cotton, woolen, paper, leather and paint industries in the United States; we make long-period contracts and import against these contracts; the attached proforma contract shows the obligation incurred by the buyer in making these contracts.
>
> All these fast dyes have been on the free list under the tariff laws of 1883, 1890, 1894, 1897 and 1909. They are not manufactured in the United States and never have been and there is no question of protection involved. They were originally put upon the free list for a definite and specific purpose, and they have been kept there for 30 years for like reasons.
>
> The object of putting indigo, alizarine, and anthracene dyes on the free list was to enable the textile industry of the United States to produce coarse goods, which were, so far as durability of color was concerned, equal not only to textile fabrics made in other countries, but the highest grade of textiles made here.
>
> The object of the manufacturers of these dyes was, from the very beginning, to place them within reach, as to cost, of the manufacturers of coarse cotton goods, for in no other way could a large consumption be secured.

In support of the above pleas, a Southern Indigo consumer testified that the cost of the Indigo used in making his denims was 7½ per cent. of the cost of his fabric. It pained him to think of the hardship that would be caused the poor American laborer on account of the additional cost, caused by the proposed 10 per cent. duty on indigo.

His statement was confirmed by the president of the American Cotton Manufacturers Association, and further supported by a brief presented by Mr. Green of Providence, R. I., in which occurs the following prayer:

> "We petition that for these reasons, indigo as well as alizarine and anthracene Dyes be left on the free list."

This prayer, for the foreign patent owner and dye-maker, was signed by 38 of the most prominent cotton manufacturers in this country. In consequence of these prayers, the proposed 10 per cent. duty on indigo and dyes obtained from indigo and anthracene, was withdrawn, while dyes obtained from carbazol were for the first time placed in the free list.

That is the way the American dye consumer has been pulling the chestnuts out of the fire for the foreigner, during the past forty years. The coal tar dye industry is adopted to this country because of our abundant supply of raw materials, and with fair tariff treatment, would have flourished and extended. It has not had fair treatment.

I am not a believer in bolstering up an illogical industry with tariff duties, but I am still less a believer in imposing duties for the express benefit of other countries. When you put a duty on raw material that must be imported and then put the finished product in the free list, you are protecting the foreigner and actually discriminating against the home manufacturer. That is just what Congress has been doing since 1883. The American dye manufacturer must needs make the prayer of the backwoodsman: "Oh Lord, if you won't help me, don't help the bear." For the past forty years Congress has been helping the bear. Let us hope that in the future the American dye consumer will be willing to "live and let live," and exert his influence more generously in favor of the American dye maker.

There is no excellence without great labor and sacrifice. You gentlemen, if need be, must be willing to saerifice a few years of cheap dyes in order to enable your fellow American dye manufacturers to make us independent of the world as to coal tar dyes.

Just here I will venture to sound a note of optimism. There has never been a more favorable time for laying the foundation of a coal tar dye industry in this country than the present. The patents owned by foreigners on the dyes themselves and their raw materials, have run out, leaving the industry free. The machinery needed is also patent free now, and much cheaper than forty years ago. We produce in abundance the raw materials, and what is more, we produce also the men to handle them.

During the past forty years, the universities of the United States have raised their standard of scholarship to the European level, so that today we have thousands of young men, coming out of our universities and technical schools, who are fully able to compete with Europeans, whether from Germany or France or England. Let us trust in the young men. Even under our old crude backwoods education we have contributed something to the world's progress—anaesthesia for instance, and the cotton gin, the sewing machine, the telegraph, the telephone, the phonograph, the typewriter, the electric light, the aeroplane, the submarine, and what, for some people, is of more importance than all the rest put together, the rubber cored golf ball. There is a possibility then, that if we seriously take up the dyestuff problem, we may at least hold our own with Europe.

Let us hope—and be Americans.

APPENDIX NO. 1

Importations of Coal Tar Dyes for 5 Months From August to December, 1914

| | lbs. | Value |
|---|---|---|
| August: | | |
| Alizarine .... | 430,569 | $113,470.00 |
| Dyes ..... | | 321,947.00 |
| Indigo ..... | 887,265 | 101,344.00 |
| | 1,317,834 | $536,761.00 |
| September: | | |
| Alizarine ..... | 85,722 | $ 18,550.00 |
| Dyes ..... | | 232,612.00 |
| Indigo ..... | 276,132 | 55,598.00 |
| | 361,854 | $306,760.00 |
| October: | | |
| Alizarine .... | 226,014 | $ 81,573.00 |
| Dyes ..... | | 571,876.00 |
| Indigo ..... | 270,240 | 124,976.00 |
| | 496,254 | $778,425.00 |
| November: | | |
| Alizarine .... | 1,678,282 | $ 414,642.00 |
| Dyes ..... | | 1,081,281.00 |
| Indigo ..... | 1,830,241 | 252,167.00 |
| | 3,508,523 | $1,748,090.00 |
| December: | | |
| Alizarine ..... | 3,162 | $ 788.00 |
| Dyes ..... | | 447,311.00 |
| Indigo ..... | 147,097 | 44,892.00 |
| | 150,259 | $492,991.00 |
| Summary: | | |
| August ..... | 1,317,834 | $ 536,761.00 |
| September .... | 361,854 | 306,760.00 |
| October ..... | 496,254 | 778,425.00 |
| November .... | 3,508,523 | 1,748,090.00 |
| December .... | 150,259 | 492,991.00 |
| Total, 5 months | 5,834,724 | $3,863,027.00 |
| Averge monthly | 1,166,944 | $772,605.00 |

Importations For Two Years Ending Dec. 31, 1913-1914

| | lbs. | Value |
|---|---|---|
| 1913: | | |
| Alizarine ..... | 5,918,337 | $1,493,446.00 |
| Dyes ..... | | 7,111,483.00 |
| Indigo ..... | 8,345,125 | 1,137,569.00 |
| | 14,263,462 | $9,742,498.00 |
| 1914: | | |
| Alizarine ..... | 4,248,535 | $1,216,536.00 |
| Dyes ..... | | 6,845,160.00 |
| Indigo ..... | 7,927,151 | 1,188,795.00 |
| | 12,175,686 | $9,250,491.00 |
| Total for 2 years: | | |
| Alizarine & Indigo ..... | 26,439,148 | $ 5,036,346.00 |
| Dyes ..... | | 13,956,643.00 |
| | 26,439,148 | $18,992,989.00 |
| Average monthly for 2 years: | | |
| Alizarine & Indigo ..... | 1,101,631 | $209,847.00 |
| Dyes ..... | | 581,527.00 |
| | 1,101,631 | $791,374.00 |

Average monthly quantity Alizarine and Indigo:
For 5 months, 1914 ..... 1,166,944 lbs.
For 2 years, 1913-14 ..... 1,101,631 lbs.

Increase in 5 month period 65,313 lbs. or 5.9%

Average monthly value total products:
For 2 years, 1913-14 .....$791,374.00
For 5 months, 1914 ..... 772,605.00

Decrease in value for 5 month period .....$18,769.00 or 2.42%

The decrease in value is due to the steady decline in prices during 1913 and 1914.

APPENDIX NO. 2

Dyestuffs and Cotton in the Tariffs of the United States.

July 4th, 1789: Indigo, 16c lb.; dyeing drugs and woods, free; cotton, 3c lb.; ready made clothing, 7½%.

August 10th, 1790: Indigo, 25c lb.; dyeing woods and drugs, free; cotton, 3c lb.; cotton manufactures, 7½%.

March 2nd, 1791: 7½% duty extended to all colored manufactures of cotton.

June 7th, 1794: Cotton goods, 5%.

March 3rd, 1797: On dyed and printed muslins, etc., an additional 2½%, making total duty of 7½%.

April 27th, 1816: Indigo, 15c lb.; dyeing drugs, 7½%; manufactures of cotton, 25% to 33⅓%.

May 22nd, 1824: Manufactures of cotton, 25%.

May 9th, 1828: Indigo additional 5c lb. for one year; then increased to 10c lb.; cotton manufactures increased specifically.

July 14th, 1832 (A lowering tariff): Indigo 15%; dyeing drugs, free; cotton manufactures, 20% to 25%.

March 2nd, 1833: Indigo, free; also all dyes, except alum and bichromate of potash, free; cotton, as in the previous tariff, unchanged, 20% to 25%. This was the first tariff, making indigo free of duty, while leaving the manufactures of cotton at 20% to 25% duty.

July 30th, 1846 (The Walker Tariff): The most rational tariff ever made, and which, therefore, remained unchanged for 15 years. Indigo, 30%; dyewoods, 5%; articles for dyeing, 20%; manufactures of cotton, 25% and 30%.

July 14th, 1862: Extract of resin or aniline colors, 25%. (This is the first mention of aniline dyes in the tariff); extract of indigo, 10%; extracts indigo and dyewood extracts, 10%; cotton, 1½c. lb.; cotton goods, 5% to 1c. per square yard.

June 30th, 1864: Aniline dyes, $1.00 per pound and 35% ad valorem; indigo carmined, 20%; cotton, 2c. lb.; cotton goods: white, 5c. per sq. yd.; bleached, 5½c per sq. yd.; colored, 5½c. per sq. yd. plus 10%; denims, 35%; cotton shirts, velvets, braids, etc., 35%.

July 14th, 1870: Aniline dyes, 50c. and 35%; aniline oil, free; manufactures of cotton, 2c. to 3c. lb.

March 3rd, 1883: Alizarine, free; aniline dyes, 35%; coal tar products, not dyes, 20%; indigo and artificial indigo, free; cotton thread, from 10c. to 48c. per lb.; cotton cloth, not exceeding 100 threads to the square inch, plain, 2½c. per sq. yd.; if dyed, 4½c. per sq. yd.; other products, up to 40% ad

valorem.; cotton cloth, plain, exceeding 200 threads to the square inch, 4c. per sq. yd.; if bleached, 5c. per sq. yd.; if dyed, 6c. per sq. yd.; hosiery, common, 35%.; fashioned, 40%. This was the tariff that killed the coal tar dye industry in the United States. It will be observed that although aniline dyes had the specific duty of 50 cents per pound removed, aniline oil, alizarine and indigo were put on the free list. Cotton cloth was taxed 4 cents per square yard, if undyed, and 6 cents per square yard or 50% more, if dyed.

October 1st, 1890 (McKinley Tariff): Coal tar dyes practically unchanged. Cotton cloth, exceeding 200 threads to sq. inch, plain, 4½c. per sq. yd.; if dyed, 6¾c. per sq. yd.

August 27th, 1894 (Wilson Bill—Democratic): Coal tar dyes reduced to 25%. Alizarine dyes and Indigo, free. Cotton yarn, white, 3c. per lb. and upwards; if dyed, 6c. per lb. to 8c. per lb. Cotton cloth, exceeding 200 threads to the square inch, white, 3c. per sq. yd. to 4½c. per sq. yd., according to weight; if dyed, 5¾c. per sq. yd. to 6½c. per sq. yd., according to weight, or when valued over 16c. per sq. yd., 35%.

July 24th, 1897 (Dingley Bill): Coal tar dyes, 30%. Coal tar preparations, 20%. Alizarine dyes and indigo, free. Cotton yarn, white, 3c. lb. and upwards; dyed, 6c. lb. and upwards. Cotton cloth, exceeding 200 threads to sq. in., white, 3½c. per sq. yd. to 5c. according to weight; if dyed, 6¼c. per sq. yd. to 7c. per sq. yd., according to weight.

August 5th, 1909 (Payne-Aldrich Bill): Coal tar dyes, 30%. Coal tar preparations, 20%. Alizarine dyes and indigo, free. Cotton yarn, white, 2½c. lb. and upwards; dyed, 6c. lb. and upwards. Cotton cloth, exceeding 200 threads to sq. in., white, 3½c. to 10c. per sq. yd., according to value; if dyed, 6¼c. to 12½c. per sq. yd., according to value.

October 3rd, 1913 (Underwood-Simmons Bill): Coal tar colors or dyes, 30%. Coal tar preparations, 15%. Coal tar products, as aniline oil and salts, toluidine, xylidin, etc., 10%. Coal tar distillates, benzol, naphthol, etc., 5%. Alizarine and alizarine dyes, free. Indigo and indigo dyes, free. Carbazol dyes, free. Cotton thread, white, 5% to 25%, according to numbers; if dyed, 7½% to 27½% ad valorem. Cotton cloth, white, 7½% to 27½%; if dyed 10% to 30% ad valorem.

This tariff if the most favorable to the general development of the coal tar dye industry ever passed. It leaves the color manufacturer a margin of 15% to 25%, and at the same time, gives an encouragement of 5% to the tar distiller, and of 10% to the manufacturer of the primary raw materials, such as aniline oil, toluidine, etc. It may be observed that the free list is still further enlarged by the addition of dyes obtained from indigo and from carbazol.

The salient facts of the above record are the steady decline in the duty on dyes and the steady advance in that on cotton manufactures.

Indigo was first made free in the tariff of 1833, and permanently free in 1883, together with alizarine.

The first mention of aniline was in the tariff of 1862, which imposed a duty of 25% on "extract of resin or aniline colors."

The crippling blow to the coal tar dye industry here was struck by the tariff of 1883, of which all subsequent tariffs are simply modifications.

## GENERAL BUSINESS EFFICIENCY IN CONNECTION WITH COTTON MILL MANAGEMENT

By JOSIAH T. ROSE, Atlanta, Ga.

The value of the products manufactured each year in the United States is $20,672,000,000.00 as against the value of all the products of the farm of $8,926,000,000.00. By comparison, the value of the manufactured articles exceeds the value of all the products of the farm, including animals, by approximately two and one-half times.

JOSIAH T. ROSE

The number of persons employed in the manufacturing industries is 7,678,578 as against 5,865,003 farmers. The amount of money expended by the Government in development work to assist the manufacturers in the marketing of their goods is $160,000.00, and the amount of money appropriated and spent to assist in the development of agriculture is $5,000,000.00 a year. This $5,000,000.00 expended by the Secretary of Agriculture in development work, increases the products of the farms some $300,000,000.00 yearly, which is a handsome return on the investment.

We, therefore, as manufacturers, do not want the agricultural appropriation reduced, but we do want the appropriation of the Department of

Commerce increased. Think of an industry whose products amount to approximately $9,000,000,000.00 yearly receiving cooperation from the Government to the extent of $5,000,000.00, and showing an additional return of $300,000,000.00, while our great manufacturing industry, whose products amount to over $20,000,000,000.00, receiving Government cooperation to the extent of $160,000.00 for development work. It is our fault if we do not get proportionate support for our industries through our representatives in Congress, provided, or as soon as, manufacturers become persona-grata and active in municipal, state, and national law-making affairs.

Of this total value of manufactured products of approximately $20,000,000,000.00, over $12,000,000,000.00 is the value of the raw material, and over $8,000,000,000.00 is the enhanced value by the process of manufacturing, of which amount $3,430,000,000.00, or 42.5 per cent., is paid directly to labor.

Of the two great industries of the United States, Textiles and Steel, a comparison shows them to be almost equal in all essential respects, the two comparisons being as follows:

Number of wage earners in
Textile—1,440,000,000, or 21.7% of all wage earners.
Steel—1,030,000,000, or 15.5% of all wage earners.

Value of products produced in
Textile—$3,054,000,000, or 14.8%.
Steel—$3,163,000,000, or 15.3%.

Added value of product by manufacturing:
Textile—$1,312,000,000, or 15.4%.
Steel—$1,361,000,000, or 16%.

Increases in last ten years of census report:

Number of wage earners in
Textile—40.6%.
Steel—37.8%.

Increase in value of products, in
Textile—87.6%.
Steel—74%.

Increase in added value of manufacture, in
Textile—79%.
Steel—66.7%.

These two industries aggregate in value 37.2% of all our manufactured products.

So, our cotton manufacturing association is an important part of an industry which employs more wage earners than any other industry in the United States, and in which during the last ten years covered by the United States census, the number of wage earners increased 40.6 per cent., the value of the manufactured products increased 87.6 per cent. and the added value of the products by manufacturing increased 79 per cent. Omitting the value of the raw materials in both textiles and steel, a comparison of the two industries shows that in the cotton industry salaries amount to 2.6 per cent., and wages amount to 24 per cent. of total value, while in the steel industry salaries amount to 2.9 per cent. and wages amount to 18.3 per cent., or a difference in executive and clerical costs of .3 of one per cent., and a decrease in wages of 5.7 per cent.; a net gain in favor of the steel industry of 5.4 per cent. Remember that this comparison is good because in the two industries the number employed, the value of the products, and the increased value by manufacture, are approximately the same.

Would it pay the cotton mill industry to increase its executive and clerical expense, if need be, in an effort to decrease its wage expense, and if so, for what shall this expense be used?

First: By securing the services of the best Auditor Efficiency individual or firm you can find, who is an expert in his line of business the same as you are in yours. He, or one of his men, should remain daily and continuously at your plant for three months, six months, a year, or longer, depending upon the size of the plant, the work to be done and the co-operation or resistance he may receive from your men or yourself or both. This man will show you the results he has secured for other mills, and you will have to assume that he knows his business, and let him get results for you in his own way. Neither you nor your men may know the future plans he has in mind. You are both much in the position of a patient and a nurse with the doctor in charge of the case—the result depends upon how well you obey the instructions of the doctor. As the head of your mill, you must first prepare yourself to give up many of your cherished ideas of the only way to succeed, and give your undivided support to his plans and ideas, for the efficiency man is very sure to have rather strong opposition at first, from the men under you.

The average General Superintendent and Superintendents all but resent the idea that a man not directly in the cotton mill business can come in, who admittedly knows less about the mill business than they do, and show them how to do the same work with fewer men, or more work with the same number of men, do it easier, and both they and their wage earners be better pleased with their work and the results obtained. Yet just such is being done every day, and can be done in your mill, if it has not already been done.

An increase in production of 43 per cent.; a decrease in unit cost of 28 per cent.; and an average increase in wages of 18 per cent., is the record of one mill where no new machinery was installed, no men in executive positions were asked to resign, no wage reductions, but on the contrary wage earners shown how to earn more money and are receiving an average of 18 per cent. more, physical fatigue has decreased, and the percentage of changes of employees has decreased some 75 per cent.

The lack of information regarding wages and conditions in cotton mills makes these subjects excellent stumbling-blocks for the misinformed, and good bogies for the agitators. If what both of these classes want are better wages for better results, it can be solved by prompt action on your part without the action of agitators or state legislators, and decrease instead of increase in cost of production.

The question of how this can be done is too comprehensive to attempt to answer in the time allotted for this paper, but a few essentials may be mentioned. First: Expert investigation at all

points in the process of manufacture to discover wasted time and material. You have men and women in your mill who are wasting both, not because they intend to do so, but because they have not been shown how to avoid such waste, nor have you made it to their interest not to waste. After expert investigation, and when you have established standards for their guidance, then by a system of bonuses make it to their interest to exceed the minimum standard established. Second: After standards have been set, organization must be perfected to carry these standards into effect. This, you say, means additional clerical force and you can't afford the expense. Can you afford a 24 per cent. wage expense when it should be 18 per cent. or less? Standards will require records which are the tell-tale of increased or decreased cost and production. The use of these complete records may require the establishment of departments, which have heretofore not been established in cotton mills. For instance, a planning department is one of great importance. Its general purpose is to know from reports what all of the departments are doing and what they have promised to do, thus harmonizing all the departments, preventing delays from one to the other, letting superintendents know one, two, three or more days in advance the work that is coming to them. In this way excuses and trying to put the blame on someone else or some other department will cease, men in authority will have to carry the load, they can properly think out and plan their work in advance, and workmen will not be forced to idleness and indifference. Other departments similar to this would be established, each with its particular constructive work to do.

Third: The selecting of the best men and women in the organization and the sifting out of the less efficient ones.

Fourth: Compensation. This should be either on the basis of a daily wage f r a mixed minimum production plus a bonus for extra production; or, and preferably, it should be on the basis of piece work prize for a minimum production, plus a bonus in addition to the regular prize on production in excess of the minimum.

Leave the bewildering questions as to how these things are to be done, how records are to be kept, how payrolls can be made up, and other perplexing questions that may come up in your mind to those whose business it is to know how to do these things, for they do know how and it can be done with decreased cost to you and increased wages to your employees

Fifth: The training of your men to study your local conditions and perfect in detail the system of organization. When the labor of the Efficiency Engineer has been completed your real work will have just begun. The education and training which you and your men will have received, and the persistency with which you make use of the new system of organization by perfecting it and adapting it to your needs, will largely determine the benefits you are to derive. Complete and accurate reports from all departments remove guess-work on your part, require men to make daily records and reports instead of weekly, monthly, or yearly reports, and enable you to commend them at the time when such commendation will be most effective, or suggest ways of securing better results to those whose records do not merit favorable commendation.

This efficiency system carries with it the use of both standing and special committees, the number and scope of which cannot be outlined here, but the general purpose of which can be briefly stated. Assuming the worst condition—that you do not want the suggestions and judgment of your superintendents but want them only to carry out your instructions, you will find that if they have been present as a committee when you arrived at your decision and know the causes that produced your decision and the objective points you have in mind, they will be able better to understand and execute your orders.

But the old plan of instructions does not secure the best results and should be abandoned in favor of committee decisions, even though you finally have to be a majority of the committee.

The question of cost accounting will come up. Does your superintendent know the origin and distribution of every item entering into the cost sheet submitted to him by the cost department, and has he been consulted before any purchases or repairs are made, the distribution of the cost of which will effect his cost of production? Either he is entitled to consultation and the right of making suggestions in these matters, or he is not qualified for the position, and if you inject items into his cost sheet without his knowledge, you will not get his most constructive efforts.

In your monthly cost sheet, do you show regular seasonable repair bills as of the month or months in which the yearly repairs are made, or do you set up a fund by charging a fixed amount per unit of production monthly so the same charge against production cost is made in months when repairs are not being made as when they are being made?

Items in a cost sheet other than those affected by operations from day to day should become a uniform fixed charge monthly. In this way any change in production cost for better or worse can be seen at a glance on the monthly cost sheet, and the responsible man can have no defense.

In the purchasing of material, other than large items, such as cotton, fuel, and power, do you arbitrarily buy supplies, put them in the store room, and send the memorandum to your superintendent? If so, you are omitting the personal element of putting the man who is responsible for the use of such supplies behind them, with the feeling that they must be used to the best advantage and not wasted or abused. Supplies from the store-room are charged to his cost of production as they are withdrawn, and he should at least be consulted regarding all such purchases, in fact, the supply purchasing department should be under the general superintendent as operating manager.

By arbitrary purchasing, you also lose the knowledge and experience of the man who uses the material and knows its comparative value better than you or your purchasing agent. Too many times price, personal friendship, or some other unsound basis is used for making purchases. All orders for supplies should, of course, go over

your desk for approval, and such approval should not become a mere matter of form.

Sales organization, accounting, traffic, and other departments would receive careful and detailed consideration in an efficiency organization. True efficiency is the effective way to meet, in a constructive manner, the demands of the agitator, whether he be commercial or political, without having to deal with him. You owe the most economical and efficient management possible to your stockholders, your directors, and yourselves, but even more so, you owe it to those under you, who of their own volition, both by lack of authority and ability cannot increase their productiveness and compensation but must rely upon you to make these things possible for them. Think of your responsibility, both to those who have their money invested (which is accumulated labor on which they are entitled to the best possible returns), and to your present wage earners who are also entitled to the best possible returns for their daily service.

The president of the mill, the percentages of which were mentioned above, and which in dollars last year aggregated a saving of $92,000.00 to the stockholders and a wage increase of 18 per cent. to the employees, bewails the fact that so many hundreds of thousands of dollars should have been sacrificed and so many thousands of employees failed to increase their earning because he did not begin eight years ago when he took charge, instead of waiting some six years before going into the real question of efficiency in mill management. He employed a firm of efficiency engineers, and had the services of one man continuously for a number of months, and from time to time the services of two men.

You can do much without such services and possibly by much reading and study on your part accomplish the same results, but in a much longer period of time.

This paper will have accomplished its purpose if it arouses you to the point of investigation and action toward greater efficiency in cotton mill operation.

## TRADE ABUSES AND A REMEDY

BY KENNETH R. HOOKER, Cincinnati, O.

So far as the cotton manufacturing industry as a whole is concerned, it has failed utterly in certain essentials to profit from past experience, and has benefitted but little or not at all by the very expensive schooling received after the panic of 1907. Within the past eight months there has been sufficient analogy to the conditions existing in 1907 to forcibly bring our common troubles once more to mind and to justify, if not demand, that certain evil practices existing in our trade shall be again and finally considered to the end that they be moderated or eliminated. It is not to be thought that all abuses start during hard times or that they are suffered only then, for such is not the case; they then, merely increase in number and assume more aggravated forms. Nor is it to be assumed that commission of sin is always confined to any one branch of the textile trade, and in facing the situation frankly, it must be admitted that at one time or another, each of the several factors is at fault in its own peculiar way—the mill, the commission house, and the buyer, and oftentimes the three ably abet one another in initiating faulty practices.

It will not be amiss to mention the more common forms of abuses in the cloth trade in at least a general way, giving the place of honor to the mills, then taking up those which are usually uppermost in our minds—those which we choose to believe are, without exception, unjustly forced upon us by the other fellow.

It should be understood that these views are expressed by a cloth commission merchant, and, from subsequent remarks, you will be able to judge whether or not the methods of our own great clan are entirely beyond improvement. The indulgence of the mill men is, therefore, requested.

It may be safely said that the occasions are rare indeed when a mill enters into a contract to deliver goods without a full and sincere intention to perform its part in accordance with the letter and spirit of that contract. But experience has shown that in the past individual mills have been so affected by changes in conditions that their actions have given buyers ground for the belief that they they have been not unwilling to force rather more than their share of profit or to evade their share of loss.

To illustrate: Mention has been made of a mill which, at profitable prices, sold almost simultaneously to two separate houses its entire production of a certain class of goods. This may have been an oversight at the start, but if so, it might have been confessed and corrected without serious consequences. It so happened, however, that through a peculiar chain of circumstances, the buyers were able to compare notes, and, as a result, both cancelled their orders. By that time the market had declined, but you will probably agree that the mill got its just desserts.

The foregoing is a flagrant and unusual case of abuse on the part of a mill. By far the greater number of complaints arise from miscalculation as to production and consequent disappointment to the buyer on account of unsatisfactory delivery after substantial price changes. In such cases, and where branded or ticketed goods are sold, it hardly satisfies the buyer to receive the necessary number of bales or cases when the number or pieces or the yardage in each has been reduced below the standard after a market advance. On the other hand, he is more than likely to complain when, under reversed conditions, the packages are larger than usual.

No doubt, in the experience of any commission house instances have arisen which indicate great carelessness in the matter of samples, and excepting the delivery of light weight, off color or imperfect goods, there is hardly a more direct road to cancellations and trouble in general than is created by sending out samples which are not in accordance with the specifications and with the goods which may be delivered later. At times mills have made important alterations in the

quality and have failed to notify their agents promptly, allowing them to sell by older samples of superior quality. This is a fruitful source of trouble and only one of the instances which might be used to illustrate that all mills do not always lend to their agents the full measure of co-operation which is so necessary to their mutual welfare.

One of the services which the selling agent must render in return for his commission is the adjustment of all claims and controversies, and few mills seem to make proper allowance for the difficulties of such situations, or the sometimes unnecessary expense which the selling agent sustains.

Claims and losses growing out of the cancellation of orders because of delayed deliveries on a declining market are the most common nuisance in our trade, but the cause is usually found in a miscalculation of the mill's production.

Turning to the trade abuses or evils which are forced upon both the mill and selling agent, or to which both of us submit sometimes only too readily, we find some unreasonable practices which have been suffered so long as to become almost trade customs.

Freight Allowance. Within the last few years there has been a strong tendency toward establishing fixed allowances to the several sections of the country, but there is still much to be hoped for. Even at this time it is almost impossible to forsee what excessive allowance may be made, particularly on shipments destined for the West. Quotations to other territory may carry an allowance of the actual rate, New York rate, or in not unusual cases, an allowance is offered which would carry a shipment well beyond its destination. On certain lines of goods the sellers have managed to standardize the allowance either through direct co-operation or through tacit understanding, but there is room for much improvement.

F. O. B. Sales. Growing out of the practice of delivering certain classes of goods from local warehouses comes the demand from buyers that even direct shipment from mills shall be delivered at destination at seller's risk while in transit and billed upon arrival. A refinement of this evil is the demand for cartage allowance, and in both of these exactions certain buying houses have forced their points successfully.

Cash Discount. Custom has defined rather exactly what lines of goods shall be sold with a cash discount, and the maximum length of time the buyer shall be allowed in which to pay his account. Abuses under this head are of daily occurrence. Passing over the small, weak buyer we find that mills or commission houses not infrequently risk the creation of bad precedent by giving an unusual discount, or by extending the term of payment by extra dating. Over-anxious sellers have even offered a cash discount or more than the usual ten days on plain cloths upon which you all know the orthodox terms are net ten days. Similar disturbances have been caused not infrequently in all other lines of fabrics.

Price Guarantee. This practice must have found its way into the textile trade from some other industry where raw material cost nothing or did not fluctuate in price. A prominent student of business ethics has said:

> "The guaranteeing of prices is one of the greatest evils now existing, and which has existed for years in certain branches of the textile trade which affect the business as no tariff ever could."

As a shewd cotton mill man quaintly expressed his objection to this practice:

> "You will find that 'guarantee' in any manner, shape or form will serve you poorly every time. It is as active as a cat, smart as a whip, unreliable as a gingerbread negro, as tricky as a mule and could whip Kitchener in a fight. Several years ago we found that we were not smart enough to use it, as every time we did, we got into a heap of trouble, so we cut it out of our business."

Delayed Claims. It is universally conceded in the trade that no claims may be recognized after goods are cut or converted, nor in any case unless the claim is made within a reasonable length of time after delivery of the merchandise. Nevertheless it is fair to assume that every house has more than once received and eventually made allowance on, claims which were outlawed by the agreement just stated, and in connection with which there were no extenuating circumstances. This has been condoned because it was a matter of policy. Stated bluntly, the seller is afraid to assert his rights and stand on them.

Special Allowances. Principal among those in the practice of privately selling first quality goods with the understanding that both order and invoice will specify "seconds." Rarely if ever is any one deceived, as the buyer, just to show what a "foxy" fellow he is, generally imparts the confidence to every one he meets, and a misunderstanding as to the market for that article is a matter of course. There are many petty abuses under this head, such as allowances for cases to be returned; the cases are rarely returned, but the allowance stands.

Blanket Orders. There is perhaps nothing called a contract that is more like a rope of sand than an order calling for several descriptions of goods, none of which is specified in detail at the time of purchase, and the delivery of which is to be made "as wanted" during a period extending over several weeks or months. With good luck and a steady market, you may complete such an order, but under other conditions, it is difficult of enforcement. In any case, it must be an abomination to the mill.

The foregoing are only a few of the abuses which are more or less common to the trade, but they will serve the purpose of illustration. It is not to be presumed that any one on the seller's side can profit in the long run from such practices, and if they were eliminated, the seller would still have a sufficiently broad field for the exercise of his talents by meeting competition only in price, quality, delivery and service.

As practically every man connected with the textile industry knows, the American Cotton

Manufacturers' Association gave a large share of its attention to the subject of cancellations during the period of depression and radical price changes which followed the panic in 1907. At that time, as you may recall, the necessity for a proper form of sales contract was thought to be paramount, and an admirably selected committee was appointed to perform the necessary task. That committee conferred with a similar body appointed by the National Association of Cotton Manufacturers and with men representing the converters and other important buyers of cotton goods.

After months of the most exhaustive study, a uniform sale note was submitted to, and later was approved and adopted by, the American Cotton Manufacturers' Association in 1910. This sale note was calculated to give to the buyer and to the seller the full measure of protection to which each was entitled, and that it afforded this protection has never been questioned. Information is lacking as to the concensus of opinion of the mills toward this sale note, but there is no evidence to show that it was ever consistently used by the commission houses. The reason in either case is easy to find—no manufacturer or agent, when wanting business, will at that time attempt to force a buyer to subscribe to what the buyer might consider are exacting conditions, especially when the seller knows, or has reason to suspect, that a competitor will gladly accept the order, often under a loose verbal agreement, without even requiring the buyer's signature.

Without risking a very wide shot, it might be said that one of the qualifications of the successful buyer in the larger market is the proper valuation of the knowledge that if a concession is wanted, the chances are favorable that he will find some one in the list of more than two score selling agents who will manage somehow to meet his wishes.

It is during periods when prices are declining that the unreasonable exactions of buyers become most pronounced, and it is at those times that the unscrupulous buyer makes unjust claims, or attempts the cancellation of orders for the most frivolous reasons. If the selling house refuses to allow the demands, a lawsuit is a prospect, but in any event, relations between the two are strained, and business between them is at an end. The seller has lost a good (?) customer, but the buyer has lost nothing for he still has an ample number of sources of supply and may even obtain through some other house the very mill's goods over which the controversy has arisen. It has been done and the chances are that the mill was none the wiser.

The all too frequent troubles of the mills which grow out of contracts can not fairly be attributed either to the lack of a high order of ability on the part of the selling house or to its loyalty to the mill. The cause lies in the relations between selling agent and buyer, but, more particularly, in the relations of the several selling agents of the whole community to one another.

In no instance such as those last mentioned, would the buyer for one moment have risked permanent damage to his standing had the selling houses been organized as a unit to combat the imposition of unfair practices. As a bit of left-handed justice, let us concede that the buyer of the class stated, and according to his own lights, had some rational basis for pressing his demands. He felt reasonably certain that his closest competitors, being built on the same plans and specifications, were at the time putting over bits of business in the form of claims and cancellations, and it would not do at all to let them hold that advantage. This method of doing business is the direct result of an antiquated system in the "primary" market, and it may be truthfully said that this class of buyers is not responsible for laxity in that quarter.

A careful study of conditions prevalent in New York and other important markets convinces one that the logical solution of the problems which constantly confront us will not come through the continuance of a regime in which blind prejudice, unreasoning competition, and the heaviest bank roll play the leading parts. The solution will not come so long as each house lives in an air-tight compartment, but it will be necessary that a common ground be found out in the open, upon which the several houses may meet for the free interchange of views in mutual confidence, and for the enactment of such proper regulations as will control the abuses of the trade—not only those of the domestic markets, but of the export market as well. In a word, the situation demands a closely knit association of all of the commission houses to be organized on clean, legitimate, constructive lines. This must not be a one man organization, it must not be a secret society, but every commission house should be free to join and enjoy permanently the full privileges of membership unless removed for cause.

The general principles of organization are not open to criticism, as, the great and ever growing number of successful business associations in all branches of industry, both here and abroad, give ample proof of the soundness of the foundations upon which they are built. The power for good of a highly organized body was never more strongly demonstrated than last August. It is impossible to imagine what might have happened if at that time the cotton and financial exchanges of this country had been in the hands of a demoralized mob, in which each individual was working blindly for his own interest. Turning to the textile industry, we find a multitude of organizations all constructively engaged in promoting the interest of their members, or striving to alleviate unsatisfactory conditions. The cotton mills are well organized into local and state associations with the American Cotton Manufacturers' Association as the parent body. The benefits derived from each of these are too well known to need explanation.

One example illustrating the benefits of organization as applied to the local body is shown in a town in the South where there are more than a dozen mills. Many of these mills are in direct competition on certain constructions of cloth, and they all compete in the labor field. Disregarding these facts, this group of mills purchases the com-

mon supply of coal through a committee, and the individual mills profit through a lower cost than is possible for competing mills in other similar localities.

Among the buyers of cotton goods the advantages of cooperation are so fully appreciated that associations have long since been formed by the converters, garment manufacturers, and many other important branches of trade.

The cotton goods commission merchants handle perhaps ninety per cent. of the product manufactured from three million bales of cotton by approximately thirteen million Southern spindles; yet this tremendous factor in the industry is the only important link in the entire textile chain which is not organized today. The fact that problems are constantly arising which directly affect both the welfare of these houses and of the mills they represent is of itself a sufficient reason for correcting this condition. The commission merchants occupy a position in the middle ground with responsibilities to both mill and buyer, yet they can not as a body meet an association from either side and discuss topics of common interest. These questions are by no means only those of self-defence. As an illustration: Uncertainty regarding the dye stuff situation, which continues even at this time, not only among the mills but among the trade, could have been mitigated had there been means of collecting and dispensing authentic data.

It is evident that the commission merchants do not entirely fail to appreciate the advantages of association. They have tacitly endorsed the principle, for with the exception of but one house of prominence, every commission merchant of New York is a member of the National Association of Credit Men. That means that when the safeguarding of actual money is concerned, cooperation is recognized as being essential. Is it not as important that each house should know other particulars of a customer's make-up and past performances than merely the way he has paid his bills? Has he carried out the other parts of his contracts, or is he prone to make unjust demands? Information of that character can be obtained satisfactorily only through a properly regulated and confidential bureau of a trade association, as no mercantile agency reports those details.

The association idea is not new in the New York cloth market. The younger men appreciate its value, and through their Cotton Goods Association an earnest effort was made last spring to interest the older men, but unfortunately without success. The reasons for this are left to conjecture, no logical or satisfying explanation having been given. It can not be fear of the Sherman Law, for it is too generally known that business associations are here to stay, and it is obvious that the law does not frown on the legitimate operation of such bodies when they do not tend to make for price agreement or control, apportioning of business, or other discriminations in restraint of trade. A convincing number of court decisions will be found supporting this statement.

The Federal Trade Commission is a new factor in the situation which business—particularly big business—will have to reckon with. An authority states that the purpose of the new Commission, according to the act creating it,

> "Is to prevent persons, partnerships, or corporations from using unfair methods of competition in commerce. Whenever the Commission has reason to believe that any unfair method of competition is being used, it is authorized to issue a complaint against the suspected offender and fix a time for a hearing. Individuals or corporations so cited have the right to show cause why an order should not be issued requiring cessation of alleged violations. If such orders eventually are issued and violations complained of are not stopped, the Commission may app'y to the Circuit Court of Appeals of the United States for enforcement of its order. Judgments of the Court would be subject to review by the Supreme Court."

Although the mere rulings of this body will carry a tremendous weight, it is to be noted that enforcement may be had only through the action of the courts. That means delay and uncertainty which may be harder to bear than the evil from which relief is sought. On the other hand, arbitrary changes or decisions affecting an entire industry must be fought by that industry as a unit. It is not to be expected that an individual would champion the cause of the cotton goods trade should matters be under consideration by the Trade Commission which might adversely affect at the same time the interests of both commission houses and mills. The best efforts of a self-supporting and a one hundred per cent. co-efficient organization will be required.

The fact that there is a wide diversity of interests in the cotton goods trade need by no means be considered a vital objection, as the basic principles involved are the same in all lines, and the adjustment of details peculiar to any branch would naturally be left to those most familiar with them.

The outside world is in the midst of the most destructive war known to history and from which even the victorious nations will emerge with crippled industries and exhausted resources. Opinion differs widely as to the conditions which will exist in this country when the war is over, but it is certain that our industries will soon witness the dawn of a new era, even though the time of its coming may be measured in years rather than in weeks or months.

It behooves us of the textile trade to forsake the methods which were up-to-date perhaps a quarter century since, and to prepare ourselves to enjoy to the fullest the prosperity that is bound to follow. Let us begin by establishing a uniform standard of trade practice.

In treating a subject of this character, affecting, as it does, such a wide range of interests, it is necessary to face the whole situation frankly even at the risk of expressing views or convictions that may be distasteful to one or another branch of the trade. There is no intention to criticise the relations between the commission houses and the individual mills, for experience has seemed to prove that these houses fully realize that the very foundation of their own success is dependent upon the success of the mills they represent.

The opinions herein bearing directly on the subject of organization are offered with the hope that they will shed some additional light on conditions in the selling markets for the benefit of the manufacturers, and to the end that the feasibility and advantages of organization may be realized by them. These opinions are not to be interpreted as even remotely suggesting any detail of modus operandi to the organizers of the as yet unborn association. These details are for later consideration.

If the conclusion is reached that a real and practical solution of the question of trade abuses has been suggested, it may be necessary for the mills as individuals and as organized bodies to lend vigorous encouragement and persistent support to the end that an association may be created and made a permanently beneficial and important factor in the industry.

## AGRICULTURAL AND MECHANICAL COLLEGE

By Mr. D. H. Hill, Raleigh, N. C.

In the first place, I want to emphasize the rather obvious thought that there should be the most complete cooperation between the textile school and the cotton manufacturers. However, as cooperation is a somewhat indeterminate word in this connection, may I not specify the forms of cooperation that I have in mind? So far as the mill men and the schools are related, it may clarify things to use familiar terms; you manufacturers are the market for the products of these schools, and the students are, of course, the commodities—priceless commodities, to be sure, because they are men.

The whole problem of textile education then is to fit the commodity—the student to the market—the mill. Now just as it would be folly for one of your salesmen to try to sell a customer thirty yarns when the man weaves only forties, or to offer a merchant denims when the merchant can sell only plaids, so it is folly for the schools to offer you a product that does not fit your needs. To prevent any waste here, evidently the manufacturers, the users of the comodity, would do well for themselves and for the school if they would frankly specify to the schools just exactly what they want in the way of the human commodities that are intended for their use. Then it would be wise for the schools to undertake with earnestness to furnish you just what you want. This is the first step in the cooperation that I came here to suggest, and if I can induce this Association of alert-minded, keen-visioned men of affairs to appoint a standing committee to confer with all the textile schools in our country and arrange a course of study that will be exactly adapted to your needs, I will feel thrice repaid for my long journey to Memphis.

This committee could work out with the schools a curriculum in practice and in theory that would meet your requirements in office help, in the dyehouse, in the designing rooms, on the spinning and weaving floors, and in the engine and dynamo rooms. The different members of the committee could from time to time visit the schools nearest them, meet teachers and students, and impress on the young men the requirements essential to mill habits and to business success. The job would not be a very big one, for there are only nine such schools in America. These are as follows: in the North at Philadelphia, at Lowell, at New Bedford, at Fall River, at Providence, R. I.; in the South, at the Agricultural and Mechanical College of North Carolina, Raleigh, at Clemson College, South Carolina, at the Technological School in Atlanta, and at the A. & M. College of Texas. In addition there are three purely local schools: one at Columbus, Ga., one at Columbia, S. C., and one at Putnam, Conn.

Our government is now sending keen men to all the villages and cities of the world to seek

D. H. HILL

wider markets for our wares. We are thickening our industrial sinews for world commerce. Can we start better than by rearing through a wise education our sons to excel us in fitness to build and dominate this international trade? It will take men and the sons of men to beat our rivals. We can afford infinite pains for this colossal task.

Owing to lack of space we were obliged to omit the address on Electrical and Pneumatic Forces in Textile Machinery, by Frank Nasmith, editor of the Textile Recorder, Manchester, Eng.; also the address on The Development of the Export Trade in Cotton Goods, by Mercer P. Moseley, of New York. The address on The Sizing of Warp Yarns, by C. C. Moore, of Washington, D. C., we will publish in our June issue.

# The National Association of Cotton Manufacturers

The expectations of the Board of Governors and Committee on Meeting that the change from the usual plans for the spring meeting would result in increased attendance and greater interest were fully realized. Many of the regular attendants at these conventions expressed the opinion that it was the best attended convention they remembered and commented upon the much larger attendance than usual in the convention hall during the sessions. There was also greater participation in the discussions. This was due to the interesting program prepared and the vital interest in some of the topics discussed. The banquet in the ball-room of the Copley Plaza on Wednesday evening was a most successful affair and the attendance was larger than the most optimistic had hoped for. The plan of having the convention headquarters and the business sessions in a centrally located hotel met with general approval and will doubtless be followed out in

ALBERT GREENE DUNCAN, RE-ELECTED PRESIDENT OF THE NATIONAL ASSOCIATION OF COTTON MANUFACTURERS

future meetings. It holds the members and guests together and gives opportunity for social intercourse which many consider of equal or greater importance than the regular sessions. President Duncan and the Committee on Meeting are entitled to and received congratulations on the success of the ninety-eighth annual meeting. The committee is composed of Messrs. Franklin W. Hobbs, Chairman; Nathaniel F. Ayer, Charles H. Fish, Thomas F. Glennon, Stephen C. Lowe, Frederick W. Parks. Messrs. Fish and Lowe were a sub-committee having direct charge of the dinner arrangements.

President Duncan received many congratulations on his able annual address. He is a good speaker and an admirable presiding officer. The plan of having those who present papers give a five or ten minute abstract of the paper instead of reading it in full, which was tried for the first time at the fall meeting last year, was followed in this convention and proved very satisfactory. It leads to greater discussion, and through greater variety and shorter time for different subjects, makes the sessions more interesting and results in larger attendance.

The meeting was called to order at the Copley-Plaza, Boston, on April 28. After the report of the secretary, treasurer and auditor had been submitted, Charles H. Fish presented the association medal to Frederick J. Hoxie for his paper on "The Prevention of Decay in Mill Timber," read at the meeting last year. Mr. Hoxie in accepting the medal expressed his appreciation of the honor conferred. President Duncan then read the following address:

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## PRESIDENT'S ADDRESS

By ALBERT GREENE DUNCAN, President, Treasurer Harmony Mills, 77 Franklin St., Boston, Mass.

Seven months ago our Association met at the opening of a great war. The shock of a world upheaval, unexpected as it was vast, was felt by all of us. Each was vainly searching the future to determine what it held for the business in which he was involved. Cotton manufacturers were harder hit than almost any other industry. Confronted with an immediate and unprecedented depreciation in our stocks of raw material and finished products, we were forced to bear the full brunt of the disorganization which for a time involved the whole financial and industrial world.

It is cause for congratulation that we have lived through the last few months. That our industry has continued solvent, and that we have seen a gradual bettering of trade from the utter prostration of last fall is a record of which we may be heartily proud. We are, however, only beginning an improvement which we hope will be real and substantial. Our industry is so related to every other in this country that general causes which are operating against business as a whole effect us vitally.

It is disheartening to call attention at any great length to the condition of general business. The best that can be said is that it is existing but it is not good. New enterprises have stopped, except where abandonment would entail severe loss. None of the development which in prosperous times this country expects as a part of its industrial life has been in evidence.

This applies not only to all the projects which as a largely undeveloped country we have still before us, but it is also seen in the lack of that normal expansion which every enterprise has counted on year by year as a natural sequence of business success. As a result, labor is unemployed to an extent hardly known in this generation, and by this curtailment of the nation's purchasing power a retrenchment has been forced, whose cause must lie deeper than any disasters which the war could bring upon us.

No spirit of pessimism prompts these statements. Pessimism has no place before an audience of American cotton manufacturers or American business men of any calling. The key note of the American character has been enthusiasm, progressiveness and optimism, and these sentiments are at present today in American life as ever, although temporarily obscured by the discouragements and uncertainties of the last few years.

It behooves us to study these questions, not in a spirit of pessimism, but of true citizenship. We must look to the industrial, political and social welfare of our country. We must find causes, suggest remedies, and apply to our relations with each other and to our government the same spirit of research and invention which has made our country what it is today.

The reason generally assigned for the present business depression, and especially by those intrusted with the charge of our government, is the war, with its disarrangement of the machinery for the free exchange of commodities and payments among the nations of the world. This explanation is not sufficient. We cannot so easily shift the burden onto alien shoulders and thereby excuse it as not of our own making. The halting attitude of business is the natural sequence of our recent national policies and is caused by the fear of the legislative and governmental campaign against business.

Two years and a half ago the American people voted for a change in their national administration and elected a party on a program of anti-business legislation. The policy of this party has since been called the "freeing of business from its shackles," but in spite of this well-sounding phrase, the business man who has undergone the freeing process finds himself more hampered and harassed than at any previous time in our history.

The most serious attack of the present legislative campaign against business was the abandonment of the principles of protection in the revision of the tariff. This action affected directly the product of every American mill, farm or factory.

Many manufacturers without regard to section or party warned our legislators at Washington that so radical a change in the tariff policy of the government as that contemplated could only result in disaster.

The terrific increase in the import of foreign goods during the first nine months that our present tariff was in operation, show that these fears were not ill-founded. The extent of the disaster that would have overtaken our industries had the operation of the new tariff continued until the present day, no man can estimate. The significant fact is that the favorable trade balance which this country has always enjoyed under a protective tariff, immediately declined coincidently with the introduction of the new schedules and continued to fall until by last April the balance was against us for the first time in many years. For five consecutive months this unfavorable balance increased and gold began to leave the country, until by causes outside of any government control the tariff was rendered inoccuous.

The war, gentlemen, in a financial sense was a blessing in disguise. The third month after its inception showed again a trade balance in our favor which has continually increased until, during the last three months, it has been greater than ever before, and since the first of January, gold has begun to return to us. We are exporting today over a hundred million dollars a month more than we import, and with a continuance of the present conditions this country will attain within a very short time a financial independence in the money markets of the world which it never before enjoyed. While the disaster to our industries by the tariff has been providentially suspended for a time, the fear of a renewal of imports is present in the minds of us all. The general stagnation of trade and commerce, however, cannot be charged to the tariff alone, for that at the moment is inoperative in effect though present as a menace.

We must look deeper to answer the question. If we take a broad view of the last few years, we see that the same antagonisms to railroads and other forms of business have been growing in the minds of the public that have reached their full expression in the present attitude of our government towards business.

We know that the supply of capital for the formation of new enterprises or the enlargement of old has been supplied by investors in ever diminishing quantities and at increasing rates of interest. We have seen many of our railroads and large business corporations forced to abandon the well-tried methods of financing of the past. Instead of selling long-term obligations at low rates of interest, which were already taken by the public as the best medium for their savings, temporary borrowings financed at a high rate of interest have become the order of the day. In other words, the short time note, lacking the elements of stability and low cost, has been in many cases the only security which companies of undoubted credit have been able to negotiate. The fear of the legislative crusade against business is the underlying cause for this change in the attitude of investors and for the decline of our national business progress and expansion.

Instances of this crusade will naturally occur to all. The sensational attacks on corporations in general surely indicate that there has come into the minds of many of our citizens a belief that marked business success is prima facie evidence of a crime. The individual or corporation which has raised itself above its fellows, even by its adequacy to minister to some public need, has been time and again placed in the pillory of public opinion and forced to prove its honesty and integrity. The fact that after many recent prosecutions by the government, the courts have decided that no unlawful acts were committed, yet the undermining of public confidence in the integrity and honesty of our business system has been accomplished without the justification that any wrong has been righted.

The terrible indictment in which Carlyle summarizes the career of Voltaire, may well be applied to many zealous prosecutors of their fellow citizens. "It is true that you have swung the torch for destroying old abuses, but where, O where, do you wield the hammer for building new reforms."

No one will deny that there exist faults in business life, but there is no justification for the propaganda which has denounced all business as essentially corrupt and vicious. Few realize how difficult it is to make money. The earnings of our corporations may seem vast in amount to those who fail to understand percentages. Many do not realize that the gain of a favorable year sometimes barely offset losses previously made, nor do they stop to remember that in the history of almost all of our present successful business enterprises, the original capital invested was often lost or reduced many times before success finally came.

Corrective legislation is necessary for the excrescences that may grow on our business, as it is for the crimes and misdemeanors which arise in our social life, but corrective legislation is very different from the restrictive and punitive laws which now burden our statute books. Legislation, to be of permanent value, must be constructive. It should aid and guide in increasing our resources, lowering the cost of our food supply and our manufacturing processes, expanding our markets at home and abroad, if we, as a nation, are to hold our place in the world of commerce. Legislation should not restrict enterprise and progressiveness, nor dwarf initiative, which has hitherto been the watchword of our success.

Commission government seems to be the order of the day. It may well be called paternalistic or socialistic, and in its theory and its application it is absolutely at variance with the ideal of a republic whose basic principles have always been equal opportunity for all and unlimited possibility of reward to any man who showed himself able to rise above the level of his fellows. Government by commission is of necessity wasteful because inefficient.

A commission, neither in conception nor in practice, can rise higher than the men who compose it. The great constructive minds of business do not devote themselves to the work of commissions whose aim is to hamper and restrict rather than upbuild and push forward. Men who are

really competent to dominate the business interests of this country will never be satisfied with a negative policy.

The most notable examples of paternalism in the last few years has been the commission form of management which the government has applied to railroads. The Interstate Commerce Commission in its early days, acting as an advisory body, corrected many abuses and accomplished untold good, not only to our citizens, but to the railroads themselves. But when, in response to a public demand, it was forced to assume the management without the responsibility for the success of our railroads, its work has proven disastrous rather than beneficial Is the credit of our great railroad systems better,—have needed improvements been carried out,—or is the average passenger or shipper better served at lower rates today,—than they were before the government assumed the policy of management without responsibility?

The last session of Congress passed a law bringing all forms of corporate business in this country under the control of a Federal Trade Commission, with wider and more varied powers than have ever been granted even to the Interstate Commerce Commission, notwithstanding that the business to be put under its control is of a private and not a semi-public character. In the closing days of Congress, the men were appointed who will assume the herculean task of determining the rules and regulations under which business must operate and the carrying these mandates into effect. Is it any wonder, in view of the experience of our railroads with commission government, that business today is halting, unaware what the future may bring forth? Neither the law under which the Federal Trade Commission is to operate is so clear in its terms nor are the men who compose this body so preeminent in training or experience as to inspire any business man with great confidence in the future of the enterprise which he conducts.

Business will have to face many new problems in the next few years. The contest in Europe is so gigantic and its consequences so far-reaching that no one is daring enough to predict the outcome. America is at peace, and has so far profited rather than suffered by the struggle. Six months ago the prediction was freely made that this country would undergo financial disarrangement, ruinous rates of interest and complete trade paralysis. On the contrary, as far as money is concerned, the very opposite has happened. Both in Europe and America money is unusually easy. We find at home gradually advancing prices for securities and a demand for many commodities almost without precedent.

Viewed superficially this would seem to justify in our minds a thorough optimism, and many factors are operating today that will shortly place this country in a financial position it has never enjoyed before. Our trade balance has turned, until on April 1st, it has reached nearly three-fourths of a billion in our favor. During the year 1915, our exports promise to exceed our imports by a billion dollars, a sum at least four hundred millions larger than the record of any previous year; and further, many offsets which have hitherto been to the disadvantage of our trade balance will not be operative. European travel will not take out of this country the sum of at least $250,000,000, as has happened annually for some time. Although never appearing in the tabulated statements of our imports and exports, this has been a vital factor affecting our financial position. Such a favorable trade balance will go far towards liquidating the debt we have owed to Europe for their investments in our railroads and other enterprises.

With what are foreign nations to meet in the next year the balance in our favor? They will not for their own preservation send us their gold. Two methods remain. They must sell back to us our securities, at a price much below the original investment, or speaking plainly, we shall exchange wheat at $1.50 a bushel for gilt edged American securities at about 90 cents on the dollar. The other method is for us to invest in European war loans or to assume the financing of nations hitherto dependent upon Europe for their supply of capital.

It is unnecessary to enlarge on the effect of these settlements on our financial position in the world. All over Europe today, financial expansion is the law of self preservation. To use a homely expression, this war is being fought by the activities of the printing press, just as our Civil War was fought by the issue of greenbacks. At the close of the war, we shall be the one nation that has gained in resources rather than lost, for over-borrowing must force in nations as in individuals retrenchments and economy, and Europe's expansion of currency and note issues must be redeemed by the savings and sacrifices of her people.

With the announcement of peace, unlimited opportunities seem to open for America. We shall as a natural sequence of paying our debts be able to supply the capital and the materials for the inevitable process of upbuilding that the nations of Europe must undergo. American initiative and resources will be ready for the task, and the future holds a period of wonderful prosperity for our country, except that the same disastrous causes that were in evidence last spring may again be operative with the increased danger that our markets may be flooded with the surplus of Europe's manufactures whose owners must have cash at any sacrifice. We must be prepared to withstand this dumping and not allow our industries to be sacrificed by our competitors' necessity.

We stand, gentlemen, on the threshold of a new era. The propaganda started by political self-seekers for the accomplishment of their own ends has borne fruit They have sown the wind,—let us hope we may not reap the whirlwind. By the operation of natural causes, by the fortunate turning to our advantage of a world calamity we had every reason to fear, the immediate outlook for business is encouraging if it were not for the deeper, underlying hindrances which our national government has placed in our path. We are shipping our foodstuffs, our clothing, our manufactures of iron and steel, in unprecedented quantities, owing to disorganized trade conditions among the older nations of the earth. We are financially in a stronger position than we have ever been. We have every reason to hope that the trade of many nations of the world will leave

their hands, never to return, and will come to us.

American industry and initiative are amply equipped to take advantage of these changed world conditions. Are we then to see this golden opportunity slip from our hands because of the handicap of governmental regulation? Should we not devote our energies, both legislative and social, to the expansion, rather than the contraction of American trade? Business must stand together,—not in illegal combinations, not in the stifling of competition, or by any other unfair methods which have been so bitterly assailed, but through this Association and through others having a like object, demand that our representatives in state and nation conserve rather than destroy the business interests of our country. Once before, within recent years, we faced a crisis in our national life, when the integrity of our monetary system was challenged, and by methods of education and cooperation the true facts were brought home to every citizen of our country. The verdict was not long in doubt, nor will it be in the present situation that confronts us, if business men will frankly and openly put before the people at large the fundamental principle on which modern business rests, those of honesty, integrity and loyalty to the welfare of our country as a whole. The sound, sober sense of the American people will do the rest, for they cannot but realize that their individual prosperity, and even their very existence, are inseperably bound to the general prosperity.

After the reading of Paul T. Cherington's paper, which will be found on another page, Congressman Calvin D. Paige, of Southbridge, made the following address on the subject of certain phases of patent legislation:

### PATENT LEGISLATION

Someone who has taken interest enough to ascertain states there are not over 25 business men on the floor of the American Congress. If this is true, what is the cause?

The great majority of the members are lawyers, who are ready to talk on any and every subject that comes up for consideration. A business man lacks the training for that sort of thing, his predicament reminding me of a story told by the late Congressman Cushman. The Congressman, passing along a country road, saw a boy working in a field hoeing potatoes. "What do you get for doing that work," Cushman asked. "I don't get anything if I do it," the boy replied, "but I ketch hell if I don't."

The other cause for the absence of business men is that they do not take interest enough, or are not willing to make the necessary sacrifice of time to take an active part in poiltical affairs, in which no men are more vitally interested. The time has come when the business men of this country should realize that to take a greater interest in legislation affecting their business is absolutely necessary.

Senator Root, referring to the present conditions as constituting a crisis in the nation's history said: "Our duty is to restore confidence in business, wipe out the misunderstandings which have arisen between the farmers of the West and South, the capitalists of the East and the North, and fight to the last ditch against increased governmental regulations of business, and prevent the federal bureaucracy from becoming stronger. Business men of America should talk, agitate, and explain. The trouble has been that they have taken all these aspersions lying down. Try to make the people understand that business is honest, fair and just."

There was one matter that I considered last fall to be of great importance to the manufacturing interests of New England, and that is our dyestuff problem, and I introduced a bill in the last session of Congress looking to the solving of that question in the interest of American industry.

Many manufacturers in New England feared that an agitation started soon after the outbreak of the European war would cause Germany to retaliate by refusing to sell dyestuffs to this country if they thought we were to take up their manufacture. I did not, however, introduce this bill until I had satisfied myself through the State Department and the Secretary of Commerce, that there was no fear on that score.

There are three distinct propositions embraced in my bill:

First, the proposition of reciprocity with foreign countries in the granting of patents by provding that

> No patent shall be granted to a citizen of a foreign country which does not grant a corresponding patent to a citizen of the United States.

Second, that a patent shall be granted only for the process of making a drug, medicine, or dyestuffs, and not upon the article itself, by providing that

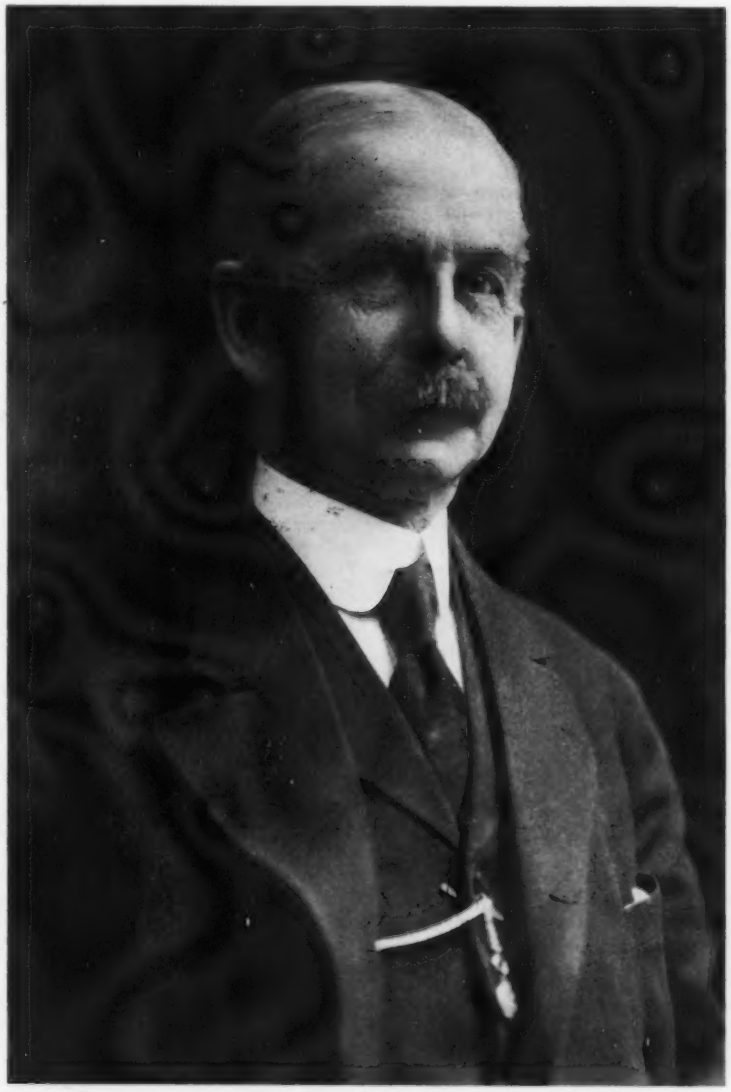
> No patent shall be granted upon any drug, medicine, medicinal chemical, coal-tar dyes or colors, or dyes obtained from alizarin, anthracene, carbazol and indigo except in so far as the same relates to a definite process for the preparation of said drug, medicine, medicinal chemical, coal tar dyes or colors, or dyes obtained from alizarin, anthracene, carbazol or indigo.

Third, the requirement that any patent relating to the manufacture or drugs, medicine or dyes shall be actually worked in the United States within two years by providing

> That in case any drug, medicine, medicinal chemical, coal-tar dyes or colors, or dyes obtained from alizarin, anthracene, carbazol and indigo on which a patent has been granted is not manufactured in the United States within two years of the granting of said patent, said patentee shall have no right under the patent laws of the United States as against any citizen of the United States who may import such drug, medicine, medicinal chemical, coal-tar dyes or colors, or dyes obtained from alizarin, anthracene, carbazol and indigo into the United States.

The facts as they exist at the present time are these: The imported dyestuffs are made by German chemists. The Germans patent the process at Washington. Every such patent has 17 years of life. All the work is done abroad. The leaders in the American textile world have been clamoring for years for an amendment to the patent laws of the United States where the patented articles or processes are manufactured or worked exclusively abroad, and where the American patents are used simply to prevent the use of these inventions or processes in the United States. The demand for compulsory working out of patents has made little, if any, headway in this country. But the war brought to the attention of our people a condition that ought not to exist, and this condition induced me to introduce this bill, which seeks to remedy the situation.

Germany controls 75 per cent. of the dyestuffs used in this country. The largest and best customer of the German dyestuffs is the United States. The German chemist comes over here, registers his patent in Washington, and goes back to Germany to turn the patent into cash. My idea is, and this bill contemplated, that the German chemist should be required to establish plants in this



HON CALVIN D. PAIGE

country and manufacture the dyestuffs on American soil. Great Britain formulated such an amendment to its patent laws years ago. If this bill had become a law some years ago the situation in the United States would not have been so deplorable as it was when the war broke out.

In olden days the dyes used in textile mills were made from wood. Then Dr. Perkin, an Englishman, afterwards Sir William Perkin, startled the manufacturing world by discovering that dyes could be made from coal tar. At that time Germany had a law that a German patent must be worked in Germany, or it could be revoked.

Sir William Perkin, therefore, ran against two fatal propositions: First, the wonderful ability of the German in chemistry; and second, the compulsory working clause of the German patent laws.

The German chemists proceeded to build upon the Perkin invention and as soon as they invented a new color they proceeded to patent it in the United States and Great Britain, as well as in Germany, and thus controlled the British and American markets, as well as their own.

After 15 years of agitation by the chambers of commerce, the British Parliament in 1907 woke up, and passed a compulsory working clause to its patent laws. The act went into force on the first day of 1908, and within a month, it provided additional employment for 2,000 English toilers. There were those who feared the bill I introduced would be applied to all patents, and they were naturally lukewarm, if not actually opposed to it, but the bill contemplated nothing of the kind. It was introduced solely for the purpose of relieving American manufacturers from the deplorable conditions which have existed since September last.

I think the textile manufacturers of the country should have investigated the merits of the bill, to say the least, even if they did not feel warranted in urging its passage. But the manufacturers who ought to have been so deeply interested in this problem in New England got cold feet because it was represented to them that the bill would be of no avail. I told my friend, Congressman Metz, at the hearing, when he was opposing the measure, the trouble with him was that he was too neutral on the proposition, and I think that was the trouble with the manufacturers in this section of the country.

Lest you think that for lack of support from the textile manufacturers in this section that the bill was not reported out of the Patent Committee, I will say that such is not the case, for I think without a doubt that had I pressed the matter the bill would have been reported by the Committee.

But I did not urge it until I could satisfy myself that the measure was what the country as a whole desired, and I allowed the matter to go over until the next session of Congress. Then, if I am satisfied that it is for the interest of American industry and progress, I shall press it, and if not, I shall let it drop.

Undoubtedly the apathy of the trade interests in England in investing capital to supply dyestuffs formerly purchased from Germany was due to the fact that no assurances were given that a protective tariff would be adopted as a measure of keeping the flood of German dyes out of that country after the war was over.

Such an argument coming from free trade England should strengthen the strong faith of the American people in the value of a protective tariff policy, for the same condition confronts this country. If our patent laws are revised in so far as dyestuffs legislation is concerned then no one is going to take the risk of advancing money to establish dye industries unless they are assured of protection.

Protection built up the tin mills in this country, although it was claimed at the time it would not do so. Protection, and a revision of our patent laws will build up the dyestuffs industry in this country. There is no mistake about that. Thomas A. Edison says we ought not to depend on foreign countries for our dyes, that we are capable of making them ourselves, and that there is no reason why we should be at the mercy of Germany, or of any other country.

Without going further into the merits of this particular bill the point I want to make is this:

First, the manufacturers of the country do not, or will not make the sacrifice of time necessary to have the weight they are entitled to in political affairs.

Second, they are not interested enough in legislation in the state and nation which is of vital concern to them until such legislation has passed on the one hand, or has failed to pass on the other.

I believe we manufacturers are remiss in our duties in connection with these great problems in which we are so vitally interested when we fail to realize the necessity of active participation in matters which are incumbent upon us.

Not so many years ago the voice of New England was the voice of the nation. Let me quote Ex-Senator Breckinridge, of Kentucky, who said: "I do not exaggerate, Mr. Speaker, I think when I say that from 1855 to 1875, whether it was for weal or woe, whether it was wisely or unwisely done, men differ and historians may dispute, but, as a matter of fact, Massachusetts led America, and led her with an audacity and aggressiveness, with a skill and eloquence, with a power and force, which has never been surpassed in all the tide of time in the leadership of great people."

Today, things have changed, and the legislation of the country is controlled by the South. The control of the House lies in the hands of 22 chairmen of committees, all but one of whom are from that section. They believe that in the past 40 years New England has had the best of it as a business proposition, and they do not intend that she shall have it longer. Very much of the legislation that has been enacted in Congress during the past two years has had that end in view.

Mr. Kitchin, of North Carolina, the new majority leader, said in the course of the debate on the tariff bill: "We intend to make you Northern men come down South, and locate your mills there, or go out of business."

Mr. Hull, of Tennessee, who wrote the income tax into the tariff bill, lives in a Congressional District where, I understand, there is not a dollar of income tax paid by any resident of the District.

Ex-Senator Chauncey M. Depew has this to say about the reasons compelling many to favor the income tax: "When the income tax amendment was under discussion in the Senate, I had a heart to heart talk with a group of Senators who were urging its adoption. I said to them, our revenues at present are furnishing a surplus. We will never need to resort to this method of taxation except in a great emergency. Then why do you want it? Their answer was: 'Because with an income tax we can collect one-half of the expenses of the government from your state of New York, and the other half from New England, New Jersey, Pennsylvania, Ohio and Illinois.'"

The exemption of four thousand dollars a year in the present bill shows that these gentlemen control this legislation, because very few in their states have an income of that size, and in no country in the world where they have an income tax is the exemption equal to one thousand dollars.

It is not necessary to go into details of recent legislation. You are all familiar with them. What is the remedy? It is that the men at the head of our great industries stand together and use their influence to prevent legislation antagonistic to the best interests of the country's prosperity.

It is well that all great movements looking towards the betterment of mankind should be under the white flag of Massachusetts, and that this Commonwealth should be a leader in all things looking to improve conditions, but we must not be so far ahead of the procession that we lose all our industries, and our influence.

Has not the pendulum swung too far towards radical legislation in Massachusetts and elsewhere, and are not those who are insisting upon it liable to realize too late that they have killed the goose that lays the golden egg, or will they continue the agitation until many of our industries like the "Arabs fold their tents and silently steal away."

Undoubtedly many of our industries are benefiting by the deplorable war abroad, yet they tell us that business will improve when the war ceases. Will it? Let us hope so, but I assert it is safe to assume that when the war ceases and the nations now engaged in it again resume their industrial activities, they will then look for the best market available for their output, and that is America. Can we with the present tariff compete with the low-priced labor of those countries? Don't you think we shall require efficiency experts to show us how to accomplish the impossible?

I am not a pessimist, but I see, or think I see, grave danger to Massachusetts and New England with the present trend of all legislation. At such a time as this it is well to hark back to the words of Massachusetts' great Senator, George F. Hoar, and you will find them inscribed in enduring granite and bronze down in historic Concord: "Finally, I believe a Republic to be greater than an empire, and though the clouds darken the horizon, I believe today is better than yesterday, and tomorrow will be better than today." But, will these words prove true if we do not check radical legislation against corporations, and especially transportation companies which have suffered most of all.

For forty years the two great political parties of the country have met in convention, and the Republican party has "pointed with pride," while the Democratic party has "viewed with alarm." But is there any intelligent man in business, great or small, in either political party who does not today view with alarm the drift of legislation in State and nation antagonistic to the business interests of the country. Can you "point with pride" to any nation which undertakes to discourage enterprise and penalize success?

Government is best where it rewards individual efforts, but the tendency today is to take from individual effort the result of their endeavors. That means there will be less individual effort, less enterprise, and therefore less growth and prosperity. But I have confidence to believe that the people of the country will repudiate the follies of doctrinaires, and the pretences of demagogues, and that sanity will once again prevail. This is the hope of the future.

And now my friends, a final word. At a time like this, when the nations beyond the seas are engaged in a great and disastrous war may we not congratulate ourselves that we are citizens of the United States of America? While not forgetting that patriotism is the nation's greatest asset let us adhere to the words of the immortal Lincoln: "With malice towards none, and with charity to all, let us press forward" to the goal of the highest citizenship, and to the maintenance of policies that shall prove of greater benefit to the American people than are enjoyed by the citizenship under any other flag in the civilized world. Towards attaining that end let there be no backward steps by the National Association of Cotton Manufacturers.

Following Mr. Paige's address, Arthur H. Lowe, of Fitchburg, Mass., stated that he had been greatly impressed with Mr. Paige's argument and suggested that the Association take some action in support of the efforts to secure the patent legislation necessary to protect an American dyestuff industry. William D. Hartshorne, of Lawrence, agreed with Mr. Lowe, but was of the opinion that patent legislation should be supplemented by a protective tariff on dyestuffs as one measure would be useless unless joined with the other. President Duncan asked Mr. Lowe to frame a resolution such as he desired and submit it to the Committee on Resolutions. Mr. Lowe replied that he would prefer to have an expression of opinion by the Association at this time and made a motion recommending the passage of a patent resolution endorsing the bill proposed by Congressman Paige. This

motion was second by Mr. Bateman and was adopted without a dissenting vote.

THE BANQUET

Five hundred members and guests gathered in the ball-room of the Copley Plaza on Wednesday evening for the banquet. This feature of the meeting brought out a large number of members who do not ordinarily attend the regular sessions. The beautiful room was completely filled with small tables, each seating ten guests.

The early part of the dinner was livened by songs in which the entire company participated. Pamphlets containing the words were placed on the different tables so no one had any excuse for being silent, and under the genial leadership of Stephen C. Lowe, chairman of the committee, who showed great proficiency as an orchestral conductor, the courses of the dinner were interspersed with popular selections which put everyone in good humor.

A feature which was not on the program was the presentation to Secretary C. J. H. Woodbury, on the occasion of the twenty-fifth anniversary of his connection with the Association, of a silver bowl containing one thousand dollars in gold. The presentation speech was made by Charles H. Fish, who told of Mr. Woodbury's faithful work and its cordial appreciation by the members. In replying to Mr. Fish and thanking the Association for the gift and good-will that accompanied, Mr. Woodbury said it had been one of the best kept trade secrets he knew of as he had no intimation of the matter beforehand. At the close of his remarks the entire company arose and gave three cheers for the secretary.

After a few introductory remarks President Duncan introduced Frederick P. Fish of Boston, who spoke on "Present Day Business Problems," and particularly the threatened danger that may arise from the new Trade Commission, depending largely upon the way in which it exercises its functions. He said that it was the duty of the American business men to withstand the menace of continued radical legislation. Business should be free from the uncertainty and fear of unknown interpretation which the new commission may give to actions which are perfectly legitimate.

The second speaker was Clark McKercher, formerly United States Assistant Attorney-General. His subject was "Open Door Competition." Mr. McKercher explained how in a number of lines of business great benefits had accrued through associations, members of which inform each other as to fundamental conditions, selling prices, distribution of goods, and other details which competitors are usually most secretive about. There was no combination to maintain prices nor to a strict territory, but the great benefit accruing came from a more thorough knowledge of conditions which enabled each member to judge how and where he could sell his own goods to best advantage. This plan has been tried with great success in a number of industries and Mr. McKercher believes it has great possibilities in different branches of the textile industry.

William S. Keyes of the National City Bank of New York delivered an address on "Credit and Other Problems in Foreign Commerce," having particular reference to South American field where his bank has established several branches. Mr. Keyes pointed out that the question of credit seemed to be the greatest stumbling block for the extension of American trade in South America, but that systematic work in obtaining information was now being undertaken and with the cooperation of American manufacturers and merchants doing business with foreign countries who should place their experience at the disposal of the credit agencies and banks in return for similar information to be supplied by them he predicted that in a comparatively short time it will be possible for the American exporter to have almost as satisfactory knowledge of credits in South America as in the United States.

Charles H. Burr was the last speaker. Mr. Burr is the attorney for the Dyestuffs Committee of the Association who, together with Mr. Mitchell, visited England and conducted negotiations which led the British Government to give safe conduct to a number of vessels loaded with dyestuffs destined for

America. Mr. Burr spoke of the international questions which have arisen in this connection. He also spoke of the latest developments which are explained at greater length in Chairman Mitchell's report noted elsewhere.

At the Thursday morning session the Chairman introduced Scott Maxwell, of Cordova, Ala., the newly elected president of the American Cotton Manufacturers Association, who expressed his thanks for the many courtesies that had been shown him since reaching Boston and extended a cordial invitation to those present to attend the next meeting of his association.

The chairman then introduced Mr. Higgins, who spoke on the opportunities in developing the South American trade and gave many useful hints at to the methods to be adopted.

## THE SYSTEMATIC PURCHASE AND CARE OF MILL SUPPLIES

BY ELIHU CUNYNGHAM CHURCH, C. E., A. M.,
Consulting Engineer, 4 East 130th St., New York City

The problem of correct purchasing is the most interesting and the most important subject before the business men of this country. In the first place it largely governs the economy of all their expenditures, except rent and payroll. In the second place it should control their selling policies. Goods are only sold because someone else wants to buy them. Thus the customer's purchasing problems fix and determine the manufacturer's selling problems. To sell properly one must know and meet the requirements of those who buy. To talk of a sales policy except in terms of the purchaser's buying policy is foolish.

It is for this reason that the governing principles of correct purchasing must be understood and applied, both to guide one's own expenditures, and to aid in meeting the needs of one's customers. When approached in the new way, the difficulties and perplexities disappear, and realizing the conditions to be met the solution of the problem is comparatively easy. The philosophy of correct purchasing has been formulated, applied, and found to work perfectly. In outline it is as follows:

1. Every article purchased must be the most suitable one for the use to which it is to be put. This is a problem of correct specifications based on expert study of conditions.

2. The proper quantity of every purchase should be carefully determined. This involves the cost of the article, the cost of making the purchase and the cost of storing the goods till used. It will generally require the preparation of a "material budget."

3. The price paid must be reasonable and the transaction must be effected at the least possible expense and in the most satisfactory manner to both buyer and seller. This requires a knowledge of market conditions, and the elimination of all requirements that cause trouble or expense without corresponding advantage.

4. The cost of preparing requisitions, and the purchasing, inspecting, storing and issuing of materials and supplies must be kept at a minimum. This calls for a proper organization, administration, operation and control of the supply bureau, as regards men, methods and plant.

So much for the generalities. Now to consider them in detail in order to see how they may be used to true-up one's own practical work-a-day conditions.

The problem of getting the proper materials is put first as it is by all means the most important.

ELIHU C. CHURCH

No matter how cheaply goods may be obtained, if they are not suitable to the use to which they are to be put it is better not to buy them. On the other hand, it often happens that increased price does not mean a corresponding increase in value. A study of the conditions of service, the cost of purchase and replacement, and the prices of the various qualities of materials will show which contain the greatest units of value per unit of cost. Endeavor should be made to standardize the grades and qualities of materials purchased and to specify the purposes for which they are to be used. Thus the advantage of having a multiplicity of styles and types of stock will be done away with; and the supplies will be bought on their merits as determined by the investigation of men competent to pass on the subject. The results of the purchaser's testing laboratory rather than the

mere opinions of employees in the operating departments should be the controlling factor. Experts having decided that certain materials are best for certain purposes, their use should be insisted upon.

This standardization simplifies the drawing of requisitions; it reduces the work of the purchasing division; it lowers costs, as it permits the combination of various requisitions for materials to be used for a smilar purpose and the purchase of the lot at one time at wholesale rates; it reduces the labor of making inspections; it requires less money to be invested in stock; and less stock to be stored, looked after and accounted for. Furthermore, stock moves correspondingly faster and there is less loss from depreciation.

The purchaser's requirements should be understood by every manufacturer, that he may set about meeting them scientifically. This is being done more and more. In consequence, the technically trained man has established himself in the selling forces of the most progressive concerns, where his reports and suggestions largely determine the goods his company produce.

In order to calculate the correct quantity of supplies to buy at any one time it is necessary to know:

1. The quantity of stock on hand.
2. The annual amount of all staple supplies used and the average monthly consumption of each item.
3. The amount of material required for construction and maintenance work for as long a period in advance as possible.

Information concerning the quantity of stock on hand is a question of stores control. A "perpetual inventory" (card) will give this data instantly.

Estimates for the purchase of current supplies should be based on future needs—not on past orders—for it often happens that busy or careless officials get in the habit of duplicating previous requisitions irrespective of changed conditions and requirements. The proper determination of these quantities may well be made the subject of investigation by "staff" experts. They should plan for the nature and quantity of work to be done in the future, and should report on the rate at which supplies have been consumed in the past. Such outside investigations can generally suggest many economies and can point out the faults that develop all unconciously in even the best of organizations.

In buying, each item should be considered separately. The ease with which money can be obtained, the possible fluctuations of the market prices of the goods, their keeping qualities, the likelihood that there may be sudden or unusual demands for them—all these matters should determine the amount of the order. The following reasons for laying in either large or small quantities at one time should be assigned relative values and the amount to be purchased carefully calculated in accordance with such figures.

1. It enables advantage to be taken of wholesale rates.
2. It results in orders of such size that manufacturers will bid direct. Middlemen's profits are eliminated.
3. The purchaser secures the advantage of the proportionately lower delivery costs where large quantities of goods are handled at one time.
4. It accumulates sufficient stock at times when prices are low to last over until low prices occur again.
5. It reduces the work of the purchasing division, as it is easier to attend to a few large orders than a lot of little ones.
6. It reduces the cost of making inspections by decreasing their number.

1. It requires room in which to store goods, and space is valuable.
2. It costs money to exercise a proper supervision and care over goods in storage.
3. The interest on the money tied up in unproductive material is a direct loss.
4. Insurance and taxes add to the expense of storing goods.
5. There is often deterioration of stock due to too long storage.

Having settled upon the most suitable material which to purchase, and the quantity which it will prove most economical to buy at one time, it now behooves the purchasing agent to secure it as reasonably as possible. Prices are fixed by the seller, not by the purchaser, and depend on a great many other conditions other than the mere value of the commodity. A careful study of these conditions will show the purchaser the circumstances that will enable him to obtain the lowest figures.

The selling expense of a large sale is generally about the same as that of a small one. When large quantities of goods are bought at one time, wholesale prices are secured. In order to take advantage of this, the purchaser should combine his requisitions for similar materials, and buy altogether at one time, instead of continually running into the market for small quantities at irregular intervals. Small orders do not tempt manufacturers to bid direct, and consequently the purchaser does business with middlemen at retail prices.

It should be recognized that manufacturers and large dealers often handle goods of but a single kind. If bids are to be secured from them direct, rather than from middlemen, tenders must be requested for these different classifications separately.

The cost of meeting special requirements is generally excessive, not only is this so—but an even more serious disadvantage of calling for unusual qualities and designs is the fact that large concerns often will not be bothered by such matters and therefore do not bid at all. Consequently standard materials should always be specified whenever it is possible to do so.

Nothing is more apt to cause a high bid than indefinite specifications. All requirements should be stated in clear cut precise language. Adjectives and adverbs have no place in a specification. To say that goods must be "suitable" or "first class" without then describing fully and accurately what constitutes "suitable" or "first class;" or to require that an undertaking shall be done in a "workmanlike" manner, or "to the satisfaction of somebody or other," merely causes

the bidders to increase their figures in self defense; and the buyer pays for this so-called insurance against himself.

All the costs of the entire transaction are ultimately paid by the purchaser, so he should see to it that all incidental expenses are reduced to a minimum.

Conditions effecting production should be considered by the buyer. Where manufacturers are given leeway in the time for commencing deliveries they can often quote much lower figures than where the goods are wanted "at once." Consequently forethought in placing one's orders ahead of time, or during a slack season, often pays.

Delivery charges can usually be reduced. It generally costs much more to make a number of small deliveries than one large one. Advantage can be taken of this fact in specifying the way shipments shall be made. Other similar savings will easily suggest themselves, or will be made by the seller if the purchaser is open-minded enough to receive them.

There are many things that make one regarded as a "good customer," and which secure favorable quotations. Prompt payment of bills, and a fair and equitable policy of settling such differences as may arise, are among them. On the other hand it sometimes happens that dishonest employees in one's own establishment "hold up" the contractor, and in the last analysis such sums are generally paid out of the buyer's pocket.

Generally large competition should be striven for. The agents should go after bids from as many reputable concerns as can be induced to quote. The resulting prices will often contain many surprises. Furthermore, such a policy prevents a clerk from unduly favoring certain competitors at the expense of the firm that buys.

Special consideration of the problem is required that it may be divided into its separate functions and handled accordingly.

Having determined what work is to be done it is next necessary to lay down rules concerning how it is to be done. In this way the activities are systematized and standard instructions formulated for carrying them out. This procedure will show further where the work is to be done, when the work is to be done, and who is to do it. Such a routine having been developed and made as simple and flexible as possible, it remains to train the various employees in their respective duties.

The creation of such an organization, the preparation of the blanks and forms needed, and finally the methods for training the personnel are matters which lack of space prevents treating here in detail.

Purchasing has generally been considered merely in the narrow sense of giving a man a requisition and then requiring him to buy the material desired, for as little money as possible. This is doing a "commission house" business in its narrowest sense, and can in no way effect the desired results. Correct purchasing is not merely a matter of "buying." The buying has but little to do with the real economy and efficiency of the undertaking. The work of the purchasing agent should begin before the requisition is drawn, and should continue after the goods have been bought, delivered and inspected. He should see that the goods are properly stored and issued, that they are put to the use intended, that they are used efficiently, and that they are kept in service till worn out.

It is only when the full scope of the problem is considered that the opportunities for savings and betterments can be realized. Strange as it may seem—the actual prices paid for supplies and materials are not of so much importance. It is necessary to explain so revolutionary a statement, for generally price is about the only thing considered worthy of attention, and a difference of but a few per cent. between two bids will swing the order from one seller to the other.

While a purchasing agent is haggling over some slight difference in price, he may be unaware that the supplies he is bargaining for are quite unnecessary, in fact that there are already plenty on hand. This will often happen where improper store room methods and the absence of the necessary records fail to reveal the conditions.

Perhaps while all the agent's attention is being given to this small difference in price it may be that the man ordering the supplies in question specified qualities and grades superior to the requirements of the work to be done. Without standard specifications based on the actual conditions to be met, it is easy to buy materials that cost double what is necessary.

Again it may occur that considerations of price so monopolize the attention of the purchaser that he does not realize that carelessness in the estimating department has resulted in an excess of material being ordered. Buying even a little extra material which is not needed and will not be used, may offset the most painstaking price shaving ten to one.

In reply to a question Mr. Church stated that he was making a special study of the question of annual supplies and had prepared a budget showing the various quantities ordered during a period of 12 months. Dr. D. E. Douty, of New York, said:

I have had several years experience in buying materials for all of the Federal Departments in Washington. The competition which Mr. Church speaks of resulted from buying from definite specifications and the purchasing of annual supplies for a large group of departments. In city, State and Federal departments, the tendency is to get the cheapest material, that is to accept the lowest bid. In the United States Government service this led to the driving out of the competition of nearly all of the good manufacturers. This point is well illustrated by the purchasing of paper, worth about $1,200,000 a year, in about 67 different grades. When the Government Printer began to call for bids on specifications rather than on sample and low price, the better manufacturers began to bid. Since 1907, in the face of rising prices, a competition based on definite specifications has led to a decrease in cost. If you go into the market for

annual supplies based on definite specifications you will get a marked increase in quality and at the same time a decrease in price.

Dr. N. A. Cobb, of the Department of Agriculture, Washington, then gave a very interesting talk on determining the length of cotton staple and illustrations of their application, an abstract of which we expect to publish in a future issue.

In the absence of Frank Nasmith his paper was read by Secretary Woodbury by title and in commenting on same said:

Mr. Nasmith's paper deals with the subject of the utilization of waste in Germany and Austria, where the mills before the war had not only consumed the cotton waste of the Continental mills, but a great quantity from this country. A great part of that consumption was due to the fact that they had an extensive market for the fabrics which we do not have in this country. There are now six "pure fabric" bills coming up for action by Congress. I think all of them are drawn either wholly or in part by people entirely unfamiliar with cotton manufacturing. You must remember that the term "waste" as applied to cotton in its process of manufacture is akin to wool sorting in every woolen and worsted mill and does not represent an inferior or worn material. Waste has its legitimate functions in making improved fabrics. I have drawn up a brief for presentation to the Committee at Washington. I want your cooperation. I want samples of cloth in which waste forms a component part. I do not want the cloth to have the name of the manufacturer of the mill, but I want to know the percentage of waste that each sample contains. Some of the most expensive cotton hosiery contains a great deal of card waste because they are able to make a smoother fabric, and the same is true of shoe linings and underwear. I want your help. I also want samples containing garnetted waste. We have put out enough to stop the action of the Committee. If you will help the Association I think we will put out enough to stop it permanently. We want legislation favorable to the Merchandise Marks Act which has been of such advantage in England both to the manufacturer and to the market.

The reading of papers on concrete construction by George C. Stone and Leonard C. Wason was followed by an interesting discussion in which a number took part. In referring to these papers Charles T. Main said in part:

I want to present to this association and particularly those who are doing business in Massachusetts, a matter that is of great importance to them. About two years ago the Legislature appointed a commission whose duty it was to investigate the various statutes, by-laws and regulations now in force throughout the Commonwealth relative to the construction and maintenance of buildings with a view to establishing laws and regulations. The Commission was instructed to report to the General Court in one year. At the end of that year an extension of time was asked and they were given another year. Recently a report has been presented to the Legislature and is known as House Bill 1750. It may be a good thing to have uniformity in the constructions of repairs and maintenance of buildings in this city, but it is a pretty big task for any commission to write specifications which will cover all the requirements of dwellings, hotels, mills, etc. These rules may be enacted into the law and if they are they should be clear and concise and there should be no requirements that will put any further burden upon manufacturers who are now staggering under all they can bear. The effect of these rules on textile mills is a pretty serious one. Under these rules as printed it will be impossible to duplicate some of our best mills, for example, the Ayer Mills and the Pacific Mills and a number of fine storehouses which are satisfactory to the owners, the insurance companies and to the State officials. Under these rules no building can be over four stories high that is of slow-burning construction. Another hardship is that the lift load should be not less than 25 pounds to the square foot. You all know that the weight of your machinery is not over 30 to 50 and the total lift and dead load is 70 pounds. When this matter was called to my attention by one of the Commission who came in to ask me about the cast iron columns, I pointed this out to him and he said they would be very glad to change it. Later I received a copy of these rules and in looking it over saw what a serious matter this was. I mentioned it at a meeting of the Boston Civil Engineers and a committee of three was appointed to go over the rules of the Commission. We have given this matter a lot of study. The commission is composed of men who seem to be very willing to adopt any suggestions we have offered and they have intimated that they will change the rules so that mills will be built that will be safe for the operatives. It seems to me that you and all other men who are engaged in special industries in the State should have a chance to say something before this Commission as hearings will be held. This matter seems to me so very important.

The election of new members resulted as follows:

FOR ACTIVE MEMBERSHIP

A. M. Amalsad, F. C. I., University of Manchester, England; William D. Anderson, 2d vice-president Bibb Manufacturing Company, Macon, Georgia; Edward T. Comer, president Bibb Manufacturing Company, Macon, Georgia; Manning Emery, Jr., agent American Textilose Company, Newburyport, Mass.; Frederick E. Fowler, president and treasurer The Westerly Textile Company,, Westerly, R. I.; George L. Gilmore, treasurer K. M. Gilmore & Company, Somerville, Mass.; Henry P. Kendall, president and treasurer, Lewis Manufacturing Company, Norwood, Mass.; Russell H. Leonard, treasurer Wampanoag Mill, Fall River, Mass.; Herman A. Metz, president

Farbwerke-Hoechst Company, New York City; Kenneth Moller, assistant treasurer Jenckes Spinning Company, Pawtucket, R. I.; Benjamin G. Rae, treasurer and agent, Futurity Thread Manufacturing Company, Boston, Mass.; Eugene D. Talford, superintendent Dundee Mills, Hooksett, N. H.; Hendricks H. Whitman, president Monomac Spinning Company, Boston, Mass.

FOR ASSOCIATE MEMBERSHIP

Elliott A. Allen, Textile Department, The S. K. F. Ball Bearing Company; Eugene H. Briggs, Sales Manager S. F. Bowser & Company, Inc.; Joseph P. Gray, president Boston Manufacturers' Mutual Fire Insurance Company; M. Graeme Houghton, cotton broker, Boston, Mass.; Edward M. Johnson, Arnold, Hoffman & Company, Inc., Providence, R. I.; William McKinley, Jr., vice-president W. H. Langley & Company, New York City; Edward Motley, member of firm Curtis & Sanger, Boston, Mass.; John H. P. Perry, manager contract department, Turner Construction Company, New York City; Charles P. Raymond, The Mill Employment Agency, Boston, Mass.; Harold A. Sands, George H. McFadden & Bro., Philadelphia, Pa.; Edward P. Walker, E. P. Walker & Company, New York City.

The following resolutions were then reported from the Committee on Resolutions and adopted:

Resolved, That the National Association of Cotton Manufacturers tender their thanks in grateful acknowledgment to Prof. Paul T. Cherington, Hon. Calvin D. Paige, Messrs. Joseph P. Gray, Oscar Elsas, Elihu C. Church, N. A. Cobb, Frank Nasmith, William D. Hartshorne, Daniel E. Douty, George C. Stone, Leonard C. Wason, Prof. Byron Cummings, Arthur H. Gulliver, Bernhard C. Hesse, Edward S. Chapin and Louis N. Olney, for their papers before the 98th meeting of this Association in which they have given the advantage of their specialized skill and the investigations and for this mark of attention to the advantage of the cotton manufacturing industry this Association is under great obligations.

Resolved, That this Association has listened with great interest to the fruitful suggestions of Hon. Calvin D. Paige in his address before this Association upon certain phases of patent legislation and it places on record its appreciation of his statements.

Resolved, That while the fortunes of war unhappily prevailing in Europe, in their interference with the industries of peace, have prevented the full measure of the unrestrained competition from people of similar skill, but who are living under conditions which permit of lower wages, yet enough was indicated before the interference of hostilities with commerce to show the peril to the employment of American labor and to the savings of the provident invested in the manufacture of cotton textiles and other competing American industries, to give alarming examples of the prostrating conditions which may appear on the establishment of peace which each day brings nearer and that we reiterate our protests at the lack of protection to American labor and its secondary advantage to American capital through the lack of a suitable protective tariff.

Following the reading of the various papers on the dyestuff situation, William A. Mitchell, of Lowell, Mass., presented the report on the Committee on Dyestuffs giving in detail the steps that were taken to secure the supplies that have already been sent to this country from Germany since the outbreak of the war and also giving the present status of affairs.

**REPORT OF COMMITTEE ON DYESTUFFS**

In October the committee secured an arrangement with the German Government by which coal tar dyes might be released for shipment to the United States and also an arrangement with the British Government by which safe conduct of these dyestuff ships was granted. The plan adopted by the committee received the approval of the State Department at Washington and after receiving its approval Mr. Mitchell was given the power of attorney to represent the National Association of Cotton Manufacturers in the negotiations to purchase dyestuffs from Germany and deliver them in the United States. The work involved a journey to England and later to Germany, which were undertaken in September and October of 1914. Conferences were held with the English and German authorities and also with the different dyestuff manufacturers in Germany. As the trade now knows, it was finally arranged that the German Government would permit the exportation of dyestuffs under the plan of the committee in return for cotton. Up to that time no cotton had been shipped from the United States into Germany since the outbreak of the war, but directly after that cotton was sent over and several cargoes of dyestuffs were shipped to America. The first steamer to sail was the Matanzas. Since then there have been five other boatloads of dyestuffs received in this country and it was expected that we might have a steady supply but the British Orders in Council changed the aspect. The committee then decided to send their council, Mr. Burr, to London to enter into negotiations with the British Government and endeavor to secure from them safe passage for the shipment of dyestuffs for the textile industries of the United States. Mr. Burr sailed from New York March 6th and returned to this country a few days before the meeting. Mr. Burr had a number of conferences with the Board of Trade, a department of the British Government, and finally was advised by the British authorities that the application and plan submitted by the committee for the passage of two ships loaded with dyestuffs from Rotterdam to the United States had been carefully considered and favorably acted upon. On April 14th Ambassador Page notified the State Department by cable that the British Government would permit two shiploads of dyestuffs to pass without interference provided the vessels sailed under a

neutral flag, shipments were made from Rotterdam and dyestuffs consigned to Mr. Redfield, Secretary of Commerce for the account of Mr. William Mitchell for distribution to the five associations comprising the Textile Alliance.

The commttee's report closed by quoting the following state documents:

On April 14th the British Embassy delivered the following memorandum to the State Department:

> The British Embassy is informed that Sir Edward Grey has addressed a memorandum to the United States Ambassador in London to the following effect:
>
> The German Government having agreed to release from their embargo two shipments of dyestuffs which were paid for by delivery in Germany of cotton cargoes shipped before March 1st on "Guantanamo" and "City of Savannah," the British Government will allow vessels carrying two consignments pass without interference provided (a) vessels sail under neutral flag (b) shipments are made from Rotterdam and (c) dyestuffs are consigned to Mr. Redfield, Secretary of Commerce, for account of Mr. William Mitchell for distribution to the five associations comprising Textile Alliance.

April 15th the State Department cabled the following memorandum to Ambassador James Gerard in Berlin.

> American Ambassador, Berlin.
>
> British Embassy here advises Department two more shiploads of dyestuffs which were paid for by delivery in Germany of cotton cargoes shipped before March 1 on Guantanamo and City of Savannah will be permitted by the British Government to pass without interference by British, provided vessels sail under neutral flag, shipments are made from Rotterdam and dyestuffs are consigned to Mr. Redfield, Secretary of Commerce for account of Mr. William Mitchell for distribution to the five associations comprising Textile Alliance. Secretary of Commerce has consented to accept consignments and will endorse bills of lading to William Mitchell who is acting under power of attorney from associations. They will give bond for him and other assurances against exportation from the United States and for fair distribution here. Communicate this to German Foreign Office and German dyestuff manufacturers. City of Memphis now in Rotterdam. Carolyn due there twenty-fourth. assured cargoes associations will hold Memphis and Carolyn. Cable Hague about cargo for Memphis also Washington. This makes four cargoes cotton exchange for dyestuffs.

Your committee realized that it was an undertaking of some magnitude to procure from the British Government a waiver of their Order in Council. But they relied on the whole souled support of the State Department of the American Government and on the sense of fairness of Great Britain. This reliance has been abundantly justified by the event. They are now confident that the chemical industry and the Government of Germany will be in no whit less willing and anxious to aid the textile industry and the people of the United States.

Mr. Allen Claflin, commenting on the various dyestuff papers said:

There has been so much said on this question that it seems rather superfluous to say anything from the particular point of view which I wish to present, but on the other hand I feel that a great deal of the information which has been expressed around this country has come from rather wrong sources and has been largely influenced by its German origin. The colors come from Germany and we American manufacturers must know that the information must also come from Germany. This information has impressed the lay mind with the idea that the industry is far more complicated than it is. But we are not starting from the very lowest beginning. Consider the cotton manufacturing industry, we have only cotton as a basis. If, however, you consider the industry as a manufacturing industry where you have all the machinery the distance is not so great. When we hear of the large amount of capital which is required to be spent we think it enormous. We have never got the dyestuff industry going because the tariff has not been right. This is too bad because the textile industries have paid the penalty of adequate protection. Intermediate products have been taxed nearly as much as the finished product and at the same time certain intermediate products have not been accepted.

Former Congressman Herman A. Metz of New York, stated that he was responsible for chartering the "Matanzas" to bring dyestuffs from Germany and declared emphatically that under present conditions it was useless to accept further supplies until arrangements were made between the United States and German Governments by which a guarantee would be given that cotton would be shipped to Germany in exchange for dyestuffs and that the latter would not be seized by the Allies. Mr. Metz scouted the idea that two cargoes of dyestuffs would be shipped from Rotterdam. He declared there was no considerable quantity of dyestuffs at Rotterdam and that the solution of the dyestuff difficulty was now up to the United States Government. In the absence of a motion to the contrary President Duncan stated that the dyestuff question would be left in the hands of the committee, of which Mr. Mitchell is chairman.

The nominating committee then reported the following nominations for officers who were unanimously elected:

President, Albert Greene Duncan, Boston; vice-presidents, William M. Butler, North Adams, Mass., and Grosvenor Ely, Jewett City, Conn.; directors, William N. Kimball, Woonsocket, R. I.; John Sullivan, Fall River, Mass., and Alexander Makepeace, New Bedford, Mass. These were all reelections.

President Duncan thanked the Association for the honor and stated that he would in the future, as in the past, do his best to serve the Association both as a leader and servant.

Prof. Louis A. Olney, head of Chemistry and Dyeing Department, Lowell Textile School, presented a paper on "The Dyestuff Situation in England," in which he reviewed the efforts that have been made with the co-operation of the British Government to relieve the critical condition in Great Britain. The Textile World Record has published in its last issues a record of the English situation from month to month and on account of the great pressure of matter in this issue we therefore omit Professor Olney's paper at this time, but a printed copy may be procured upon application to the secretary of the Association.

## PIECE RATE SYSTEM FOR WAGES IN COTTON MILLS

By OSCAR ELSAS, President Fulton Bag and Cotton Mills, Atlanta, Ga.

All of you are more or less familiar with the operations in a textile manufacturing plant—therefore, little time will be taken in attempting to outline the various processes.

It may safely be stated that in the average mill, scarcely 25 per cent. of the hands employed are directly dependent on their own ability to better their conditions—that is, to increase their earning capacity. Therefore, about 75 per cent. of the help have little incentive to render even a reasonable per cent. of attention. This lack of interest and incentive on the part of the help is a deficiency which cannot be supplanted by extra energy and attention from the foreman, and no amount of pushing by the management can get results when there is indifference or incompetency, unless the man higher up is as well informed concerning the capacity and ability of the individual workers, as are the foremen of the respective departments.

The piece rate system is the logical means of furnishing this information, and differentiating between the inefficient and efficient.

The method of paying weavers by the cut or some similar method, based on the production standard, is an old story; a somewhat new subject is that of loom fixers and second hands being paid on the same basis, which system is now being tried out and working with some success in several mills.

It is well known that in the card room the roving frame hands are paid by the hank, said production being reported by means of a hank clock attached to the end of each frame.

This paper is especially prepared to show an extention of the use of the hank measuring device, commonly called the hank clock, to other uses than roving frames.

It might be well, while discussing the card room, to illustrate the benefits of the piece system from practical experience in our plant. The first effort in the card room was on drawing frames. The customary method is to pay the drawing frame tenders based on so much per delivery per day, irrespective of the amount of work there is passing through. About a year ago we equipped all of the drawing frames with hank clocks. Before intimating the purpose of these clocks we made two months' observations of production. We soon learned that our foremen were, in a number of instances, badly mistaken in their ideas as to the efficiency of different operatives on this work. Some who were considered the best were, in reality, producing the least, while others who were apparently slower, were really turning off a larger amount of work. In other words, some of the shrewder hands were able to fool the foremen. They cannot deceive the "silent little superintendent" on the end of the frame; it is a constant watcher; is always there, and is more certain than a man with a stop-watch.

In one of our mills we have 108 deliveries of drawing. Prior to the installation of the hank clocks it was absolutely necessary to keep all of these frames going, to get the proper product through. Even then, we often were called upon to furnish extra help to crowd additional output. Naturally such conditions required the constant attention of the foreman and his assistants. After installing the clocks and paying by the hank, a gradual change was noted. The production per operative increased rapidly, with the result that we were able to dispense with the product from twelve deliveries of drawing. We therefore, overhauled the twelve deliveries, which needed it badly, greased them, and covered them with burlap. We did not have a chance, under the old system, to repair the frames because of needing the output.

We had a similar experience in our other mill, where, out of 144 deliveries, we were able to shut down 24 deliveries after the installation of the hank clock. Since that installation we have added some looms, increased our demands in other ways, and still have a slight surplus of drawing frames.

One of the great advantages to the manufacturer from such change is the better quality of help you are able to keep. With reliable means of determining just what each one does, the less capable are placed on work more in line with their ability, and the efficient hands get the advantage by greater output and more pay. This also helps to

retain larger sized help, which has a tendency to improve the quality.

This method is not altogether a novelty, as is shown by a report made by Mr. W. A. Graham Clark, of the United States Department of Commerce and Labor, in a bulletin entitled: "Cotton Fabrics in Middle Europe." On page 129, under the title "Wages in Bohemian Mills," he says:

"Drawing frames, seven deliveries, paid 1.32 cents a hank for No. .13 sliver."

The system of hank clocks has been extended into our spinning department.

The experience in the spinning room has been very satisfactory, both from the standpoint of employee, as well as employer.

The old system was to pay by the side; the new system is to pay by the hank. The same reasons apply for misjudgment on the part of the overseers of the capacity of each operative as were mentioned with reference to the drawing frames.

We did not introduce the system without many difficulties, but all of these have been overcome.

Our first attempt along this line consisted of the equipment of sixty-four frames with clocks on each, in a detached spinning room. These were left with the superintendent and foreman in charge of the room, with instructions to get the best results possible, and to later devise a method for utilizing the clocks as a basis of payment. Both the superintendent and foreman prejudged the scheme, and disapproved of same. When we realized that their efforts were antagonistic, we turned this room over to one of our cost accounting clerks, with instructions that he should be in full charge, and establish a satisfactory system. It took a few months of experimentation to get the proper rates, but after six years' use of this method of payment, we can say that we would not change back to the old system, under any circumstances.

We kept a careful record of the production and front roll speeds on the different numbers of yarn, also the character of stock used, the number of sides run by each individual spinner, and the general running conditions of the room. From these figures we established a fair average condition. These records, as already stated, extended over several months, without change in the method of paying, as it was our desire to let the hands forget that the clocks were there. There was no noticeable increase or decrease in the production during this period.

We then decided to establish the hank rate. This was done after taking into consideration the various factors governing the work of each operative. Rates were made so that at the average of the then present production no change in the earnings would result. During the first week we found it necessary to reimburse two spinners who had failed to make their usual production. In other words, we guaranteed, in the beginning, that the system would not involve a cut in their earning capacity. The third week, every spinner showed increased earnings on the new basis, and the scheme was fairly launched.

Each succeeding week showed a gradual improvement in production and earnings, and then we began to get cooperation from the superintendent and foremen.

Prior to this change, we were compelled to operate twelve combination spinning frames in another room to supply filling. Very soon we were able to put these frames back on to warp, as the hank clocks in the filling room had had the desired effect.

You may be interested in having a few examples of how this system worked in individual cases.

Spinner "A" ran eight No. 20s filling, with front

FIG. 1. DOFFER'S CARD

roll speed of 132; 100 per cent. production in hanks would be 50 hanks per week.

During the period under observation the production averaged about 40 hanks per week, or practically 80 per cent. After the new system had been inaugurated, an improvement in production was noted through succeeding weeks, until the high average of 46 hanks per week, or 92 per cent. production, was reached.

This spinner's earnings increased from $8.65 to $9.85 per week.

Spinner "B" ran six sides, No. 19, soft twist filling, with front roll speed of 144; 100 per cent. production in hanks would be 54 1/2 hanks per week.

During the period under observation the production averaged about 44 hanks per week, or practically 80.7 per cent. After the new system had been inaugurated, an improvement in production was noted through succeeding weeks, until the high average of 47 hanks per week, or 86.2 per cent. production, was reached.

The spinner's earnings increased from $7.70 to $8.75 per week.

Spinner "C" ran four sides of No. 4 1/2 part waste filling, with front roll speed of 170; 100 per cent. production in hanks would be 64.4 hanks per week.

During the period under observation the production averaged about 43 hanks per week, or practically 66.6 per cent. After the new system had been inaugurated, an improvement in production was noted through succeeding weeks, until the high average of 48 1/2 hanks per week, or 75.3 per cent. production, was reached.

This spinner's earnings increased from $8.65 to $9.20 per week.

From the foregoing it will be observed that in no case were spinners' earnings decreased, but that the increase in production was marked. In fact, a total amount of $16.20 per week more was paid to the spinners in this small room after the adoption of the hank basis. To offset this extra cost, we were able to change to warp the twelve combination frames running on filling, thus decreasing the cost of filling $43.55 per week, a net saving of $27.35 per week in actual labor. The increased production also decreased the fixed charges per pound.

A fair spinner's wages, under the old system, would average around $6.85 per week of 62 1/4 hours, and on No. 20s warp our production averaged 1.87 pounds per spindle.

On the new basis a spinner of equal ability will earn $7.65 per week of 60 hours, and produce 2.09 pounds per spindle.

On some of our new frames, which are better adapted to this work, we get as high as 2.35 pounds per spindle.

You will note that there is an increase in spinner's earnings, as well as output, notwithstanding about 3 1/2 per cent. reduction in running time.

Since the inauguration of this system we have not suffered seriously for spinners, notwithstanding the fact that a great many industries in our city formerly supplied themselves from among those whom we had trained to be good spinners. This is due to the higher earning capacity and more contented feeling on the part of the spinners. In other words, where they formerly earned $7 to $8 per week, they are now able to earn a little over $12 per week.

Another difficulty formerly experienced was that they asked to be transferred to carding or weaving departments, because of the hope of greater earning capacity in these departments, but under the present system there is no incentive for these changes. Naturally, they turn off better and more work than formerly.

In establishing a system to pay the doffers at piece rate, we concluded to pay by the box, each box containing bobbins from a definite number of sides of spinning frames. To indicate the amount

File 208 B Mr. Dept #2. Date March 18th 1915

MILL-2.
Spinning Production Report

| Yarn | W 36 | W 30 | W 20 | W | W | F 37 | F 30 | F 26 | F 25 | F 20 | F 19 | F 16 | F 12 | F 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 % Ave. | 6.90 | 7.04 | 8.04 | | | 7.04 | 8.24 | 9.65 | 9.65 | 9.05 | 8.71 | 9.11 | 9.78 | 10.0 |
| Hnks. | 6.2 | 6.5 | 6.2 | | | 5.6 | 7.6 | 8. | 8. | 8.2 | 7.8 | | 8.4 | |
| % | 89.7 | 92.3 | 77.1 | | | 79.5 | 92.2 | 83. | 81.2 | 90.6 | 90. | | 86.5 | |
| Req'd | 95 | 95 | 95 | | | 95 | 90 | 90 | 90 | 90 | 90 | 85 | 85 | 85 |
| Fr.Run | 6 | 52 | 16 | | | 10 | 40 | 3 | 7 | 10 | 16 | | 4 | |
| Failed | 1 | | 2 | | | 3 | | 1 | | 3 | 1 | | 1 | |
| | #35 | | #139 | | | #47 | | #64 | | 2 | #80 | | | |
| | | | 140 | | | 48 | | | | 64 | | | | |
| | | | | | | 55. | | | | 70 | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

FIG 2. SPINNING PRODUCTION REPORT

of earnings of the doffer, we have a card with space at top for the doffer's name, the number of the yarn, and the week ending date. The main body of the card consists of columns, one for each day in the week, with square spaces numbered in vertical columns from 1 to 72, placed in double rows, as is shown in reduced size to fit the page in Figure 1, the original being 4 to 10 1/2 inches.

The man whose business it is to "pour filling" to insure its not being mixed (inasmuch as we have a great many numbers in the same room), has a punch, similar to that used by a railway conductor, with which he punches the numeral on this card, starting at Number 1, and continuing as the day advances, so that the last punch on the card represents the number of boxes that this particular hand has doffed during the day. This makes it easy for the timekeeper to check. A record is kept of the number of frames on each number of yarn for each particular day, and the number of times these frames are doffed around during the day, which gives the total number of boxes of this particular number. This enables the timekeeper to check up whether anybody has been overpaid or underpaid through collusion on the part of checker and doffer. We found that the use of the card has another advantage. Some of the smaller boys when receiving a brass check for each box, as was formerly done, would gamble with their checks, thereby having their pay tickets come up short on pay day, which did not please their parents. With the card this is impossible.

We found that some little attention is necessary in arranging a doffing schedule in the spinning room, so that doffers of equal capacity are paired together. From observation we found that the majority of overseers match boys by sizes, whereas there may be a tremendous inequality in ability in these same boys. By the piece rate payment of doffers, it is a very easy matter, and requires only a little observation, to tell which are the best and fastest doffers, and thus arrange the crews' work to the best advantage, causing the least possible stopping of frames.

We have only recently applied hank clocks to our twisting frames, of which we have only a small number, but from our experience, we are going to gain approximately 12 per cent. production. We are not in a position, at the present time, to give any figures in connection with this later application, but from all appearances this is going to work out as satisfactorily as the other schemes have done.

A noticeable advantage obtained by the use of hank clocks we find to be the intimate following up of production. We have used for this purpose several forms, one of which is herewith inserted in reduced form to fit the page. The original is made on the typewriter, being 6 by 8 inches.

This is made out by the timekeeper in the morning for the previous day's work, and shows at a glance which particular frames need attention. Perhaps the trouble may be a slack belt, an improper twist gear, or the doffing not being done to the best advantage, either by the doffers not being matched according to speed, as previously mentioned, or from other causes which would readily appear to the overseer in charge of the room, once his attention is directed to this weak spot.

The line "Required per cent." is made out by observations of the necessary stoppage incidental to this number and kind of yarn. The line "100 per cent." is figured from speed of the front roll, with no allowance whatever made. This report goes daily to the general manager, with duplicates to the superintendent and cost department, and where any items need attention the superintendent immediately takes them up with the overseer in charge of this particular department.

We found another important advantage in hank clocks, i. e., to assist the cost department. By a series of actual weighings we have established a relationship between hand readings and actual pounds produced. Apparently, the number of spindles operated, multiplied by the number of hanks and divided by the number of yarn, would give you pounds of yarn produced. This would be true were it not for the fact that the cost department does not want to figure, as yarn, the waste which is produced in this process, therefore a certain allowance is made, which varies according to the number of the yarn and the stock being spun. On good Middling Cotton, spinning about No. 20s, an allowance of twenty points would be satisfactory. By using this method we are able to figure, every day, the number of pounds of each number and kind of yarn that is used, which is entered on a sheet. This shows at the top of each column the required number of pounds of this particular yarn for all purposes per day.

In the carding department we use similar follow-up forms for production from drawing frames, slubbers, intermediates and speeders, and have found, by their use, that we are able to reach and maintain a much higher average percentage of production than it was possible for us to do before.

The piece rate system prevents collusion between dishonest overseers and operatives. This is due to the frequent checking by the timekeepers, and minimizes the amount of day help in each department. It is usually traceable to day help that padding of payrolls is carried on. The checking up of the production, both individual and total, will guarantee paying for only that which is produced. When we first commenced checking under this system we found that we were paying for more frames than we actually had in the mill.

The piece rate system stimulates incentive in the help, and produces a higher percentage of output, thus greatly reducing investment charges per pound. Whenever we have had trouble with help it has been from those not working on a piece rate basis.

The piece rate system is not new in other industries. It is surprising that it has not been adopted more generally in cotton mills. Even the Government, in their work at the Government arsenals, has made rapid strides in this direction. The official report to the Secretary of War from the Chief of the Ordnance Bureau, Brigadier-General William Crozier, in speaking of the Watertown Arsenal, commends very highly the improved methods of efficiency, which are prov-

ing to be of substantial good to the employees, as well as the Government.

The change from day to piece rates, which is the idea especially dealt with in this paper, thus receives sanction from the highest authorities.

We have converted our entire plant to a piece rate basis, with the exception of picker hands, slasher hands, and a few general helpers, where the nature of the work makes such arrangements quite difficult.

We shall be very glad to give any additional information to those interested in this system.

## LIMITATIONS ON ASSOCIATION ACTIVITIES IN DEVELOPING EXPORT TRADE

By PAUL T. CHERINGTON, Assistant Professor of Marketing, Graduate School of Business Administration, Harvard University

If you examine many of the published articles on export business you will find that the main emphasis is placed upon such things as the desirability of a merchant marine, the establishment of branches of American banks, betterment of the consular service, and such general or public activities as these. To be sure, just now we are having an illustration of what valuable adjuncts to foreign trade development these would be if we had them. The conditions which we now are facing are of course such conditions as may never prevail again, and are such conditions as have not prevailed since the close of the Napoleonic wars. These adjuncts to foreign trade development are extremely valuable, and may even be necessary, but they do not seem to be the point upon which attention should be fixed exclusively or invariably. To depend upon the consular service or the Bureau of Foreign and Domestic Commerce or any other government agency or department to do all the heavy work of foreign trade building for American manufacturers obviously, is not a very hopeful method of procedure. In a large measure also this is true of association work as distinct from individual work in foreign trade building. All of these agencies have their value, and in some respects each of them is indispensable, but each has its limitations.

Not the least of these limitations is the fact that both government aid and association aid get all their value from the success with which they supplement individual work. The great successes in export trade work are individual and all other means employed outside of individual effort have been either in the nature of supplementary helps or temporary expedients.

The prevailing fashion in a foreign trade discussion, just now, is a pleading for joint export efforts. Let us examine, for a moment, some of the fields for joint effort which offer greatest promise of success from their employment.

In the first place any association, particularly if it has already established itself in connection with domestic activities, has facilities for gathering and giving out information of a general character which can be of great value. Useful foreign trade information is divisable into two general classes, according to the point of view involved. This distinction is fundamental, and failure to appreciate it accounts for much of the misunderstanding between givers and receivers of information of this character. These two classes may, for convenience, be given the arbitrary designations of "journalistic," for the one, and "strictly business" for the other. In order to get this distinction clearly in mind and to give it its necessary emphasis some explanation of the terms may be worth while.

The first of these classes embraces such information as is based upon a broad view of American trade, looking at the commerce of the United States in the large and as a whole. In this class

PAUL T. CHERINGTON

would be included such material as statistics, information which relates to the general principles underlying the trade of the country and suggestions as to the openings and possibilities for new lines of American goods not yet placed in the partucular market under consideration. Information of this kind is roughly termed "journalistic," without the least reflection upon its character, but rather in the sense of its having news value. Such information is necessarily preparatory and general and, taken alone, is not sufficient for an American maufacturer to do export business on. At best, it can only be suggestive, and even when most carefully prepared and most conservatively stated, it may be deceptive.

The second class of information is that based upon export trade as an individual business enterprise. This embraces knowledge of particular markets as they relate, not merely to the trade in general or to particular classes of goods, but to the product of the special, interested concern. It includes an intimate knowledge of local conditions and peculiarities as they bear on this single line;

it involves the formation of reliable and active business connections; and it covers details of manufacturing, salesmanship, delivery and payment as they refer to the special requirements of individual houses. Information of this character may be referred to as "strictly business" information, not because it is more necessary than the "journalistic" type of knowledge, but because it resembles more closely the individual business information which the manufacturer regards as essential in opening up a new market at home. An exporter, to be successful, in addition to his general information must have this detailed information, or he is obliged to entrust the carrying on of his foreign business to someone else who does have it. The "journalistic" type of information is proper and valuable up to the time when the manufacturer decides to attempt to enter a foreign market. From the moment he has made that decision, information prepared from the "strictly business" point of view is essential.

Within the first field associated work can accomplish much, but as the exporter nears the stage of actual business his responsibility becomes more and more individual, and while the association may still help him, the dangers involved in an association undertaking this kind of work for individuals becomes extremely grave. In the field of general information the association is valuable. In giving particular information it is on dangerous ground.

In the second place an association can do a great deal in the exchange of information about bad creditors and dishonest accounts, but, even in this field, it is in most cases safer to leave the work to those institutions which perform the corresponding service in this country.

A third field for association work in export business, which is in many ways more promising and more important than either of these, relates to the preservation of the integrity of the reputation of the members of the organization in their export relations. The discouragement of bad methods of trading by American concerns and the arbitration, or conciliation, of commercial disputes is a large and legitimate field.

A fourth field for association work which promises to become of great value as time goes on, is the field opened by the relations between the individual members of the association and the various governments, both domestic and foreign. Tariff disputes and the adjustment of appraisements and smaller misunderstandings have been satisfactorily handled in many cases by an association when individual settlement might have been more difficult and more costly.

A fifth field, and one which is in many ways more important than the others, is the possibility of association work in meeting federated foreign competition. Commissioner Joseph E. Davies has prepared a list of twenty-one European federations for modifying export competition, which were in existence before the war started. American associations to meet the joint competition of such organizations open up a comparatively new field for joint effort and one which has yet to establish its right to exist under the Sherman law.

If you take the list of successful foreign associations and study the names carefully, you will observe that most of the associations have been formed to handle staple lines. In these lines, the possibilities of price agreements, pooling of profits, and apportionment of markets are larger, and this, and similar work, can be carried on better than in the specialty lines.

Our export history shows that for many years we were mainly concerned with staples. Our entry into the more difficult fields of specialty exporting on a serious scale is only comparatively recent. This accounts for the fact that until very recently most of our trade has been in the hands of commission merchants. Even yet the great mass of our exportation of manufactures doubtless can be done more profitably in this way then by direct methods; but the great problem before our manufacturers today is how to do this business more intelligently as individuals. What is needed more than anything else now is individual study.

Association work may help, but it cannot safely be expected to do more than help. Such work has unquestionable value, but it has equally unquestionable limitations. Each of the fields for association work already named sugests its own limitations. No American manufacturer would be content to do business in this country if he depended on these agencies alone. Beyond these, and enormously more important than any of them, would be his individual efforts at trade building.

What can the manufacturer, say of cotton goods, do? First of all, he can forget the ocean. What would he do if this "new" market were near at hand? He would begin by a careful study of the market. Then he would study his goods, and, if necessary, adapt them to the market. Then he would find out something about the best method for him to do business. Then he would choose his customers and determine his prices, and price policies, and finally he would undertake, by care and forethought and all the methods of good business, to tie his customers to him, and all this would be individual, and not association work.

Perhaps we can see the contrast between the individual and the association ideas if we take the first of these plain steps (the study of the market) and examine a single instance. A certain American manufacturer of playing cards is doing a huge export business. In one country after another he has virtually driven long established competitors out of the field because he has patiently studied the market. He sends men to one market after another to make these market studies. These men go out and play cards for weeks and months with all kinds of people, find what games are their favorites, and study the back-designs and the "body" and "slip" and all the other details of cards that please the users. They find out what really would meet the need as well as, or better than, anything in use, and then, what does the manufacturer do with this information? Does he publish it in an association bulletin for all domestic and foreign competitors to make use of? Not exactly. He himself, as an individual, makes cards which will deserve the trade he seeks. With due allowance for differences in conditions, it is the same method he uses in this country, and he gets the business, both at home and abroad. Association

help in these markets might do some things for him; but the heavy part of the work he can do for himself, and the same thing is true in the other lines of real business getting. The successful man first deserves the trade, and then he goes about getting it.

So it is, in a large measure, with cotton manufacturers. In staple lines and in staple markets like China, where so much of the business is now conducted through export houses, who deal with the guilds, either direct or through an intermediary, there is perhaps the least prospect of change; but in adding new markets, and in building trade in the less staple lines, this same groundwork of individual study and individual work is essential. Special agent reports may point the way. Association effort may make some of the crooked places straighter, but the United States as a world trader in cotton goods will not cut much of a figure until the United States cotton goods manufacturers, as individuals, deserve and win individual triumphs.

## THE REVIVAL OF THE USE OF NATURAL DYESTUFFS

By EDWARD S. CHAPIN, 516 Atlantic Ave., Boston, Mass.

Imagine if you can the following situation. The supplies of artificial dyestuffs have become exhausted. The European blockade or embargo, call it what you will, has continued in uninterrupted force. Capital has been too timid to manufacture artificial dyestuffs in this country.

This situation we will not consider. "Nothing but black and white," says one; "The country will have to wear white," cries another; a third asserts: "The mills of the country will have to shut down!" What is the truth?

The truth is that natural dyestuffs can keep the mills of the nation in operation, producing a diversification of shades and giving fast results.

This paper does not propose to consider the question of the relative merits of natural dyestuffs versus artificial dyestuffs. The present is no time for controversy. It demands cooperation and construction.

We must remember that before the days of the modern artificial dyes people wore colored garments. Ladies were gay and gallants tried to please long before Perkin discovered mauve. A careful reading of any of the works of the masters of detailed description of the past century—of Dickens, or Thackeray, or Victor Hugo, or Goethe—will reveal interesting evidence of color and fabrics. Even more so the standard text books on dyeing, of fifty or seventy-five years ago, consider the whole range of the spectrum. It is truly remarkable the multi-colored and fast effects that the dyers of the old school achieved with limited means and facilities. It is quite within the memory of many of this audience, when the earlier aniline colors were distrusted by the general public because of their comparative fugitiveness, and it took much industrious advertising and scientific development of new and better products to overcome this prejudice.

The dyers and chemists of today are in a position to secure with natural dyestuffs better results than the dyers of former days. The forms of natural dyestuffs were not so perfect formerly as today. Then the dyer was forced to use the dyestuffs in the form of chips or ground bark or ground leaves; today he has ready at hand the essential coloring matter of the natural dyestuffs in the form of extracts, or pastes, or powders, and in many instances the coloring matters have been worked up by chemical treatment so that they dye more readily and give brighter and faster results. The march of chemical and mechanical science contributes to the solution of the task. Chemical science in recent years has found the exact chemical composition and nature of the natural dye-

EDWARD S. CHAPIN

stuffs, so that they can now be dyed most intelligently and in accordance with the highest development of the theory and the practice of dyeing. New and improved chemicals and dyeing assistants are at the disposal of the dyer. New forms of dyeing apparatus and improved mechanical devices help further. Improved dveings are to be expected in response to persistent and intelligent work, and during the past months such results have been secured in many instances.

For the dyeing of cotton the following natural dyestuffs are available: logwood, fustic, bark or quercitron, flavine, hypernic and the various redwoods, catechu or cutch, gambier, sumac, madder, Persian berries, and indigo. Of these dyestuffs all except madder, Persian berries, and indigo are available in large quantities.

Logwood is the product of a large tree known botanically as "hematoxylon campechianum," which grows abundantly in the West Indies and Mexico. The supply of logwood is not petering out as some have erroneously imagined: the log-

wood forests have not all been cut off. There are well-nigh limitless virgin forests of logwood in Haiti, Jamaica and Mexico. Reforestration and cultivation are the simplest of operations. The logwood tree is a veritable weed, it spreads itself; twelve years alone elapses between the seed and the tree ready for cutting for commercial purposes. Cultivation consists in keeping the forests thinned out, so that the luxuriant tropical growth will not form an impenetrable jungle. It may fairly be said that never before has there been available more logwood than today.

Fustic, also known as old fustic, Cuba wood and yellow wood, comes from a tree known botanically as morus tinctoria or maclura tinctoria. It is a native of Brazil, Mexico, and several of the West Indian Islands.

Quercitron bark is the inner bark of a species of oak, the quercus nigra or quercus tinctoria, a native of America. It grows abundantly in Pennsylvania, Georgia, and the Carolinas.

Flavine is the name given to a preparation of quercitron bark. It contains the principal coloring matter of quercitron bark, quercetin, in nearly chemically pure state.

Hypernic is the name given to the color extracted from the various soluble red woods. These are principally Brazil wood, peach wood, sapan wood, and lima wood. Brazil wood grows in the forests of Brazil. Peach wood is a native of Mexico. Sapan woodgrows in Siam, Japan, and the East Indies. Lima wood is imported from Peru.

Catechu or cutch and gambier closely resemble each other in properties. They are obtained from various species of acacia, areca, and uncaria, growing in India.

Sumac consists of the leaves, leaf-stalks and small twigs of several species of rhus. This shrub is remarkably common and widely spread, growing in Sicily, Tuscany, France, Spain, Algeria, Canada, and the United States, particularly in Virginia.

The various regions from which these natural dyewoods come are with unimportant exceptions outside the inhibiting influence of the war. Accordingly, they are all available. Even prior to the war these dyestuffs were in large general use—much more extensively than is generally realized so that the present additional demands from the textile mills find an industry well fitted to take on extra burdens and to perform needed services.

Black is the color the most widely demanded by the trade, and will accordingly first engage our attention. For black dyeing logwood has been and still is the most generally all around useful black dyestuff. It can be used not only for the coloring of cotton but also of wool and silk and a great variety of fibers. There are three methods of applying logwood on cotton:

First, The stuffing and saddening method.
Second, The bluestone soda ash method.
Third, The mordanting methods.

Each will be considered in order.

In the stuffing and saddening method of dyeing, the cotton—in the form of piece goods, yarn, or raw stock, is first impregnated with the Logwood by passing it through or boiling it in a concentrated dogwood extract solution; then dried or whizzed to fix the logwood or remove an excess not taken up by the fiber; then finally passed through a bath of chemicals, usually chrome, or chrome and bluestone, or copperas to develop the Black. Two illustrations of this process will be given; one on piece goods, and the second on raw stock.

This process of logwood black on piece goods makes use of two boxes and has been in contsant successful use for the past four years in the dyehouse of a large producer of black dyed cotton piece goods.

The apparatus consists of a stock tank for the logwood liquor and a logwood dyebath, three sets of drying cans, a stock tank for the chrome liquor and a chrome bath, a steam box, a wash mangle, and a washer. The logwood box and the chrome box are provided with guide rolls, and above the centre of each box are three squeeze rolls. The guide rolls and the squeeze rolls are so related that the cloth in its passage through both the logwood and the chrome baths is twice immersed and twice squeezed.

The dry bleached pieces are run into the dyebath and over the first four rolls, squeezed and given a second run in the dyebath over the second four rolls; and given another squeeze. From the dyebath the pieces are dried over three sets of drying cans. The passage through the chrome bath follows immediately and here, as in the dyeing, there are two immersions and two squeezes. After the chroming, the goods are steamed, and then washed. The washing is very thorough, first by passage through a wash mangle, and then through a washing machine. After washing the goods are again dried and then finished.

Speed of machine: 45-50 yards per minute.
Stock liquor: 125 gallons water; 110 pounds logwood extract, 51 degrees Tw; 5 gallons acetic acid No. 8.
Temperature of dyebath: Near boil.
Time of immersion: 10 seconds.
Chrome liquor: 125 gallons water; 49 pounds bichromate soda; 3 pounds soda ash, 58 degrees.
Time of immersion: About 2 seconds.
Time of steaming: About 10 seconds.

The speed of the machine, 45-50 yards a minute, corresponds to a production of about 3,000 yards an hour; but a speed of 75 yards to the minute (4,500 yards an hour) is possible.

The goods are used as linings for suitings, overcoats, and the like, where a black is needed that will not stain white when wet hot-pressed. The logwood process is preferred because of the low cost of production, and the excellent fastness of the result.

The following method is being employed in a Klauder-Weldon dyeing machine, coloring 1,000 pounds of cotton to a batch.

Run for one hour at a boil in a 10 per cent. solution of logwood extract, prepared by dissolving 10 pounds logwood extract 51 degrees Tw. to every 12 gallons of water. This solution will stand 4 degrees Tw. at 70 degrees. Take out of machine and whizz. Repack in machine, and strike with 4 1/2 per cent. bluestone and 1 1/2 per cent. soda chrome. Run in striking bath 1 1/4 hours.

Wash well. Soap in a 1/2 of 1 per cent. solution of soap. Wash and dry. The logwood bath is saved and brought up to 4 degrees Tw. for further dyeings. This method gives a remarkably full and rich black on stock of excellent fastness to fulling and of moderate fastness to light.

The bluestone soda ash method of dyeing cotton, or the ash black as it is commonly called, is a favorite method of applying cotton because of its simplicity.

The following recipe is a modification of a bluestone soda ash logwood black formula used in a large mill for the coloring of raw cotton, and well illustrates the general principles and practice that are obtained in the successful dyeing of cotton with logwood in the single bath.

Prepare a dyebath containing for every 100 pounds of cotton:

60 lbs. logwood extract. 51°.
6 lbs. soda ash, 58°.
3 lbs. bluestone.

Boil 1 1/2 hours. Throw out the stock and allow to drain. Oxidize for two hours, or until the full shade is developed, turning occasionally.

For a second bath use:
40 lbs. logwood extract, 51°.
4 lbs. soda ash, 58°.
2 lbs. bluestone.

For a third and standing bath:
20 lbs. logwood extract, 51°.
3 lbs. soda ash, 58°.
1½ lbs. bleustone.

After the standing bath is obtained, enter the first lot for a second dip in the standing bath. After this, one immersion is usually sufficient. If extra heavy shades of black are required, give two immersions or increase the amount of dyestuff and chemicals in the standing bath. If a better shade of black is desired, use an ounce of cutch extract for every pound of logwood extract. Some dyers find it advantageous to use also an ounce of sumac extract for every pound of logwood extract.

The bluestone soda ash logwood black can be utilized for the dyeing of other forms of cotton, as cotton yarn, cotton warps and the like; and for the dyeing of a wide variety of cotton fabrics. Following are a series of formulae taken from practice.

For dyeing cotton yarn black dye is usually preferred. Black dye is a logwood extract, which contains a proportion of tannin bearing material, as chestnut extract. It gives a very good deep black at an exceedingly low cost. For 100 pounds yarn:

Starting Bath. 50 lbs. black dye; 20 lbs. soda ash; 10 lbs. blue vitriol.
Second bath. 25 lbs. black dye; 8 lbs. soda ash; 4 lbs. blue vitriol.
Third or Standing Bath. 20 lbs. black dye; 3 lbs. soda ash; 1 1/2 lbs. blue vitriol.

Boil 1 1/2 to 2 hours, lift and oxidize 2 or 3 hours. By aftertreating with 1 per cent. chrome at 150 degrees to 160 degrees for 20 minutes, the fastness to washing is made excellent.

For 650 pounds warp, prepare a bath containing:
130 lbs. logwood extract, 51°.
18 lbs. soda ash.
12 lbs. blue vitriol.

Give four runs, boiling. Sadden in another tub with 6 pounds copperas, at 120° Fahrenheit; finish. This gives a very good black.

The following recipe is an example of a successful application of the use of salt in the bluestone soda ash logwood black. A Klauder-Weldon machine was used in dyeing.

For 800 pounds raw cotton prepare a starting bath containing:
370 lbs. extract logwood, 51°.
18 lbs. blue vitriol.
18 lbs. soda ash.
20 lbs. common salt.

Boil the cotton for 2 hours. Oxidize for 2 hours. Afterwards wash in

8 lbs. soap.
5 lbs. common salt.
15 lbs. sal soda.
1 qt. ammonia.

Dissolve the chemicals for the washing in about three-quarters of a barrel of water, and feed on to the cotton at 120 degrees. Continue washing one-half hour.

For a standing bath, gradually reduce the amount of dyestuff and chemicals above given during four or five baths to one-half the quantities.

The bluestone soda ash logwood black can be used for all purposes where fastness to fulling is not required. It is faster to light than the stuffing and saddening black.

By mordant methods is meant those methods in which the mordant is first fixed on the cotton and then the logwood. Two of these methods will engage attention:

First, The iron mordant.
Second, The chrome mordant.

The iron mordant logwood black has always been employed when a black of special fastness to fulling and light was required. The following receipt is for coloring warps in a four box machine.

Twenty-five per cent. extract sumac. Boil the sumac in the boxes one-half hour, run in the yarn, and leave over 1 day, 36 hours, or more. Clear lime water, 2 runs; pyrolignite of iron, (3° Tw.), 2 runs.

In practice the volume of liquor in the iron liquor machine is so small that the readings of the hydrometer are not of much value. It is best to add between 20 per cent. and 25 per cent. iron liquor, one-half before each run, and to squeeze the warps lightly. Much of the liquid is removed from the bath, and it is generally necessary to add some water on every set. Wait twenty to thirty minutes before washing.

Wash, 1 run; clear lime water, 1 run; wash, 1 run. 15 per cent. conc. extract logwood; 3 per cent. conc. extract fustic; 1 per cent. copper sulphate.

Add 1/2 the logwood and 1/2 the fustic, bring the temperature of the bath to 140° Fahrenheit,

and make one run. Add the remainder of the logwood and fustic, raise the temperature to 170° Fahrenheit, and make one run. Raise the temperature to a boil and make six runs. Add the copper sulphate in solution, half on the fifth and half on the sixth run, there being eight runs in all.

Wash: 1 run.

One per cent. potassium bichromate. Add one-half the bichromate and make one run at 180° Fahrenheit. Add the remainder and make one run at the same temperature.

Wash: 2 runs.

Finish with 3 per cent. lard oil and 3 per cent. soft soap. One run.

The above process can be sohrtened considerably with equally satisfactory results, by the use of the machinery constructed for the dyeing of sulphur colors. These machines give longer immersions than the old Scotch tubs, and have heavier nips.

First run: First box, 50 per cent. sumac extract, 180°, nip; second box, 30 per cent. nitrate of iron, cold, nip; third box, lime colution, cold, nip; fourth box, water.

Second run: Three boxes of logwood, 30-40 per cent. to each box, boiling; fourth box, wash.

Practically the same processes may be used for pieces.

The chrome mordant black came into being in response to the request to dye logwood blacks on raw stock in a vacuum dyeing machine. In this machine the methods above described, except the iron mordant method, do not give any results at all.

The use of a chrome mordant to develop and to fix logwood on wool is a well known dyeing process. It yields blacks of excellent fastness to fulling, light, and various other agencies, and of exceptional beauty. The idea to adapt this method of dyeing wool to obtain equally fast and handsome results on cotton has long been alluring. Various methods of mordanting the cotton with chrome that have been tried in the past have not met with wide or permanent success.

The trouble has always been either that the chrome would not go on the cotton fiber or was deposited so loosely that in washing it nearly all came off.

These difficulties have recently been overcome by the use with the chrome of a compound, invented by a well known chemist, which causes the chrome to exhaust on to the cotton and to be deposited so firmly that even severe washing will not strip off.

The preliminary studies for the practical use of this new method of mordanting cotton were made in the model laboratory of the American Dyewood Company. This laboratory is fully equipped with small size dyeing machines of latest invention. Through the courtesy of Mr. W. A. Mitchell the work has passed beyond the laboratory stage. Mr. Mitchell generously offered the use of the dyehouse of the Massachusetts Cotton Mill for trials on a practical scale; and the results obtained in the laboratory of the American Dyewood Company have thus had the benefit and the test of the splendid personnelle and equipment of Mr. Mitchell's plant.

The following receipt was employed in the coloring of 150 pounds of raw cotton in a vacuum dyeing machine:

After loading the machine, fill with water and bring to a boil. Boil ten minutes to insure thorough wetting out of the cotton. Add 6 pounds of soda chrome dissolved in three pails of water, and after the chrome liquor has well circulated, add slowly 3 pounds of chrome assistant dissolved in 2 pails of cold water. Boil one hour. Wash. Fill the machine with water and bring to a boil. Prepare a half barrel of logwood extract liquor 15° Tw. containing ten per cent. fustic, and six pails of clear lime water. Boil the logwood liquor well. Add slowly to the machine, and boil one hour. Wash. Strike cold with 1 pound of bluestone and 8 ounces of chrome. Wash and finish as usual. Soaping improves the beautv of the shade, but it is not essential.

The more concentrated the chrome liquor the more quickly the cotton takes up the chrome and the less the time required for boiling. From two-thirds to five-sixths of the chrome is exhausted on the fiber. The logwood liquor is not exhausted, but should be run off and kept for use in subsequent baths. The heavier the black required, the more concentrated should be the logwood liquor.

This process gives a black of excellent fastness to fulling and to light. The stock cards readily and the feel is especially satisfactory.

The process has been tried practically only on raw cotton. It has given good results in the laboratory on yarn and pieces. As the coloring of raw cotton in a vacuum dyeing machine is the hardest test of a process, there is good reason to believe that the new chrome mordant method can be adapted in practice to the coloring of the other forms of cotton and in the various other dyeing apparatus.

Next in importance to black come the fashion shades. Many of artificial colors are so brilliant, that the great fear of many people has been that without these the consuming public could not be satisfied. A few illustrations will show that beside blacks the natural dyewood can be made to yield a wide variety of fashion shades.

In dyeing the fashion shades, the stuffing and saddening method and the mordant methods are applicable.

These valuable dyestuffs yield browns of specially pleasing tone and satisfactory fastness. The following receipt represents the method of dyeing a medium shade of cutch brown on pieces in a jigger:

For 100 pounds of goods use 50 pounds of good extract cutch. Enter goods nearly at a boil. Add the color in two ends. Then add 5 pounds of bluestone. Bring to a boil, and boil one hour; shut off steam and allow to run from one-half to three-quarters of an hour. Draw off liquid and run in 2 pounds of chrome. Run twenty minutes at 140°. Rinse and dry. For a standing bath the amount may be reduced one-third. Gambier may be used in place of cutch and acts similarly.

For the toning of browns, fustic, bark, and flavine are available as yellows, and hypernic as a red. Logwood, sumac, and copperas can be used for darkening.

Two illustrations follow: a light, bright brown dyed in a four box machine, and a dark brown dyed in a jigger.

Prepare gambier, bark, and chrome solutions at 10° Tw. The gambier and the bark are divided between the first two boxes. Use fifteen pails of bark. The third box contains cold water, and the fourth box the chrome. Use eight quarts of chrome liquor. After leaving the chrome bath the goods are well washed in a water mangle. Repeat the process. Dry and size.

Prepare a solution in a jigger containing a 100 pounds of goods, 10 pounds hypernic crystals, 5 pounds logwood extract 51 degrees Tw., 15 pounds extract of fustic 51 degrees Tw., and 15 pounds extract of bark 51 degrees Tw. Add the color in two ends. Boil one-half hour. Shut off steam. Add 1 pound of bluestone. Run fifteen mniutes. Add 2 pounds chrome. Run fifteen minutes. Wash.

## OUR TEXTILE INDUSTRIES AND EUROPE'S CALAMITY

By ARTHUR H. GULLIVER, 30 Huntington Lane, Norwichtown, Conn.

It seems to anyone observing from the outside, the conduct of various industries that employ cotton as a raw material, either in the bale or in the yarn, that there is a great deal too much expected from want of experience, and after men have been trained for years their services are dispensed with and considered valueless, because the number of years that they have lived exceeds the average of the insurance tables.

We find that our competitors on the other side have not hesitated in the present conflict to use cultivated, experienced brains for the selection of their leaders, even on the battle line, and have not considered the fact of whether they were forty or seventy years of age. It would seem too ridiculous even to emphasize such a point as this, if it had not been called to our attention recently in a plant which had for years been successfully managed by men of long experience, whose training was not obtained by six months or a year in overalls, and the whole personnel of the force in charge was changed on account of the question of age, and age alone.

If we are to compete in the markets of the world with those who now have possession, it cannot be done by any haphazard advertising or by any mail order proposition, but by earnest, honest, continuous work, that will take years to put our industries in close alliance with the buyers of even South America, and much more long continued with older nations who have gained their knowledge of the value of furnishing goods produced by firms of long standing so as to keep for themselves the trade not only of their old customers, but to secure a hold with all of those who are attracted by the stability and value of the articles to their establishment.

Is there anything that can be said, gentlemen, to bring this matter more strongly to your attention? It certainly will not require a great deal of consideration when scarcely any of you who are present cannot put your finger on one or more concerns who have exchanged a man of sixty or even over that age for the smart, progressive man of thirty, and although the result may have satisfied the latter, it did not satisfy the stockholders. If there is any lesson that we are to learn from the war of slaughter with which the papers are filled, it is the fact that age does not produce stupidity and that ability, backed by experience, is very much more permanent than youth and dash, no matter what the latter may have in its favor.

This brings us back again to the first point raised earlier in this article, in regard to the uniformity of product. This must also be emphasized and considered in detail, and the first want or lack that seems to us to meet the manufacturer in this particular is that the weights of our yarns and our cloths are not secured with the proper attention to preventing any possibility or error in the measuring or weighing apparatus used.

We have to consider that the average man, even though he has had quite a good deal of outside experience, is very dull in the use of weights of small caliber that are necessary in handling cotton fiber between the picker room and the spinning. It certainly would be for our benefit as well as that of the plants that we manage that no chance of error that can be prevented by appliances should be allowed.

It is not for us to name any particular device that would prevent the careless man from giving us wrong weighings in process of manufacture, nor to advocate any special form of scales, either of pounds or grains, nor any special make of machinery to prevent these errors, but only to call to your attention in the most general way the fact that prevention is much easier than correction.

We perhaps know from our own experience that the average weighing in a mill, even on coarse numbers of the untwisted cotton before it is made into roving, is very carelessly done, and the changes in machinery that have reduced the cost of the carding processes have made it still more necessary than it was under the so-called automatic devices for regulating the amount of stock per yard that went through a machine that these weighings should be as accurate as any device can be made.

Perhaps the use of coiler drawing has shown us that although it is very much better for fineness than the old process of two, three or four strands delivered from separate trumpets, it gives us results in the yarn or cloth that are superior. We have also found that unless the chance of error is removed from the man who does this weighing the average number runs with wider variations and more irregularity than under the slower system of past years.

These variations mean, even in a mill with an average number of 18s, a serious defect in the yarn if sold to the knitter, and a serious loss if turned into cloth when the product is sold to the

converter or sent to the bleachery. Our competitors, on the other side, have solved this difficulty to such an extent that the English weighted cloth, made by putting foreign preparations in the yarn running through the slashers has secured and kept the trade of the Chinaman, who uses a cheap cloth, properly weighted, for his funeral observances, and the product has had a steady market in China for the very reason that the English manufacturer has secured a regular output on account of the fact that no extra weight of cotton has been used, and the weight of the cloth has been so regular that the finished material, carrying the China clay or whatever preparation is necessary to stiffen it for funeral use, has held the market by the reduction of cost against competition.

This also applies to the German, who uses our waste and makes from it either cloth or yarn and returns to us a uniform product obtained by exceeding care in weighing and preparation from the waste in bags to the sale product.

We will not try to give in detail the value to the stockholder, the manager, the operative, and the customer of regularity, continuous and certain, in weights of yarn or cloth, but it brings one matter to our attention which has for a number of years been in evidence among the knitting trade of this country, namely, that the most correct weighers and sizers of yarns have been the men that owned or managed a knitting plant. They have found that notwithstanding the reputation of the mill from which they bought, or the fineness of the yarn purchased, even from the best plants in this country, they could not obtain as even a material as they could from across the water.

The results have been so unfortunate in regard to the lengths and sizes of knitted fabrics that they have found that the surest method of producing even a partial remedy was to do thier own sizing in whatever material was received, in order that the claims made by them to be settled by the dealer or the mill from whom they obtained the yarn should be guaranteed.

To sum up in a few words, the problem which meets us from the breach of trade relations on account of the war conditions, we wish to emphasize the fact that even though we succeed in adopting the better methods used in Europe and study the conditions of the markets to be obtained outside of this country for goods whose output has been stopped from the older manufactories, it is a necessity that we add to our present systems thoroughly good merchandizing.

It seems almost impossible for even some of the newer concerns to understand that study of market conditions, ways of putting up fabrics and requirements of buyers means either a continuous, profitably operated plant or low prices for both preferred and common stock and an intermittent market.

There is no reason on the face of the matter that the men in our larger cities, who have gained all their experience of cloth and yarn with experience in buying and selling, should have the monopoly of all information valuable to a mill, and it behooves us, before the rush and hurry that will result when it is exactly known how small a proportion of the retail dealers' wants can be supplied from the other side, to master, or to undertake to master, the science of properly furnishing material to the buying trade It cannot be learned in New York altogether, or in any of our primary markets. It may require more time perhaps than we are accustomed to give to the mastery of detail at the plant, but it is the only hting that in the long run will succeed in removing once for all the bugbear which seems to confront at recurring intervals every plant that is engaged in textiles, either once in five or ten or less years.

The study of merchandizing has not been followed in this country carefully, and it is open to question whether it has been mastered in Europe, but there is no real reason why any artificial restrictions should stop the flow of products to the consumer or the demand from the general public for the labo of every man and woman and minor in manual labor.

It certainly behooves us, as a nation that will largely profit by the peculiar conditions that this war has produced, to put before us the ideal of a continuous, good trade, obtained not by exploiting other firms or individuals, but by supplying the best of goods at a fair price to satisfy customers.

## THE RELATIONS BETWEEN HUMIDITY AND REGAINS ON WOOL AND COTTON

By WILLIAM D. HARTSHORNE, 40 Pleasant St., Methuen, Mass.

It cannot at present be said that any definite standard for moisture regain on cotton, manufactures of cotton, raw or scoured wool, worsted yarns, or other manufactures of wool except tops, or other textile material except silk, is properly recognized in the trade in this country.

There are many conflicting reasons for the lack of such standards here, but none of them are insurmountable if the object be merely to establish a common standard to buy and sell by, as has been the case with the somewhat less hygroscopic but still more valuable material, silk, for which the standard of 11 per cent. regain is generally recognized all over the world and, indeed, was made such in France both by commercial practice and by sanction of the French government nearly seventy-five years ago.

The most important reason for not adopting the English and Continental standards for wool here lies in the fact that it is more difficult to maintain indoor atmospheric conditions in our climate corresponding to such standards and, moreover, tops or yarns actually containing such amounts of moisture, if long stored, unprotected by mildew-preventing methods, are likely to become seriously damaged.

In the writer's experience, there is little such danger of damage at 15 1/2 per cent. on wool (15 per cent. on oil stock.) It may be true that for the best conditions of spinning it is better to have in the material an amount of moisture equal to, or possibly even greater than the Bradford standards, to allow for necessary losses by evaporation, while maintaining a humidity condition of spinning rooms at a point where electrical action in cold weather would be without material effect:

but this can be taken care of by the spinner himself, and need not involve the danger from mildew by long storage in our warmer climate. However, with material worth anywhere from 50 cents to $1 or more a pound, it is easy to see the commercial importance of knowing at what price 100 pounds of bone dry material is being bought or sold, but it makes little difference, as a commercial transaction, whether the price be fixed on the basis of that 100 pounds weighing 110 pounds, 115 pounds or even 120 pounds, provided the standard is accepted, condition determined, and corrected weight billed up.

Assuming that actual conditions for best usage are otherwise controllable, climatic considerations of storage and transport ought to be the chief criterion in establishing a buying and selling standard in order to avoid as far as possible, changes in weight or other kinds of measurement which might involve controversy and unnecessary duplication of tests to verify results.

## TWO PROBLEMS OF THE COAL TAR DYE INDUSTRY

By BERNHARD C. HESSE, Ph. D., 90 William St., New York City

The purpose of this paper is to present in concise and in as non-technical fashion as the nature of the subject will permit

1. The manufacturing side, and
2. The merchandizing side of the coal tar dye industry.

I have treated both of these at some length elsewhere, but as I understand the present situation, that is to be condensed into as naked a statement as possible of the elements of the problems contained in this industry, and particularly with respect to any attempt to transplant the whole, or so much of the present-day industry as will answer for the whole, to this country, and upon an independent and self-contained basis.

The elements of the manufacturing problem may be stated as follows:

Ten things from coal tar, called "crudes," form the contribution of coal tar to this industry.

These ten things, by the aid of numerous non-coal tar things, such as acids, alkalies, gasses and the like, are converted into about three hundred other things called "intermediates."

These three hundred intermediates are "assembled to form nine hundred finished products or dyes."

A parallel might be: Ten fibers make three hundred yarns, which are woven into nine hundred patterns.

In the dye industry the key to the situation is in the "intermediates," i. e., the "yarns" of the parallel.

In the "assembly" of the "intermediates" to dyes, little, if any, disturbance is introduced by the formation of "by-products;" this difficulty is practically limited to the making of "intermediates," and the manufacturing problem is largely centered at that point.

By-products are unfortunately formed at almost all the steps in making "intermediates" from "crudes."

This is shown at Fig. 3, where toluol is shown as being treated with chlorine; in this case the products are three, namely:

1. Benzyl-chloride.
2. Benzal-chloride and
3. Benzotrichloride.

They are wholly different from each other, and while No. 1 can be converted into No. 2 or 3, or No. 2 can be converted into No. 3, the reverse is not commercially possible. If any one of these three is desired, more or less of the other two is always produced, except perhaps in the case of No. 3, under very narrow specific conditions. If you want No. 1, you must be prepared to find a No. 2 and some No. 3 with it, and so on. The proportions are under some control, but not wholly. The relative and actual amounts of each

BERNHARD C. HESSE

made during a given period, say, one year, will depend upon other conditions, but at the end of the year all three should be completely manufactured up into goods; the factory that handles this problem best is, of course, best positioned.

As a parallel; suppose a spinning machine set for fine yarn always had to make a certain amount of medium yarn and of coarse yarn; when these yarns are woven up the amounts of woven product will depend upon the relative amounts of fine, medium and coarse yarns available.

By consulting Fig. 3 you will see that benzyl chloride, the fine yarn of the parallel, is used with other things in making three dyes; the benzal chloride, the medium yarn of the parallel, is used in a group of dyes numbering, say thirty; that benzotrichloride, the coarse yarn of the parallel,

is used in but one dye of that figure; that is, the fine yarn is used in three patterns, the medium in thirty patterns, and the coarse yarn in one pattern.

The manufacturing problem here is to adjust your weaving capacity so that it shall always keep pace with your spinning capacity.

Now, Fig. 3 represents about one-fortieth or 2 1/2 per cent. of the present day finished dyes. As a matter of fact, these chlorides, i. e., these yarns of the parallel, are useful in many other dyes or "patterns." This complicates the problem considerably; but leave that out of present consideration

At Fig. 6 you will see that one "yarn," i. e., 1.6 nitro-napthalenesulfoacid is produced in equal amount with another "yarn," 1.7 nitro-napthalenesulfoacid; further, that the 1.6 "yarn" is of no use whatever in making other "yarns" or other "patterns;" 1.6 is a dead loss, so far as this chart is concerned; 1.7 must be changed into three intermediate "yarns" before it is converted into a "yarn" that can be woven into a "pattern."

The chemist cannot completely eliminate these by-products; he can control them, but they are always with him. The only manufacturing remedy is to work them up into other products that are saleable. That is one of the annoying solid facts confronting this industry.

In the merchandising end, your sales department must be capable of placing at a profit each of the various finished dyes in such relative amounts that practically none of the by-products is left unsold at the end of the year.

To go back to the parallel: Assume these "yarns" to be used as the weft or filling only; the fine yarn is used for babies' jackets, the medium for men's socks, the coarse for mittens, and that the relative amounts of these yarns is such that for every hundred baby jackets, you must make ten pairs of socks and five pairs of mittens. The sales department has got to keep these markets in that alignment, namely, one hundred, ten, five. If the mitten market takes a jump the factory has got to get more coarse yarn from somewhere or make more jackets and socks, and the sales department has got to nurse the jackets and socks markets up to mitten-market proportions. If these markets cannot be increased the factory must look for a new or added supply of coarse yarn, or the works must carry jackets and socks in stock until their markets look up again. In this parallel the operation can be so set that one or the other of the three chlorides is in excess; the factory can re-set the operation so that more of the coarse yarn, or of the medium yarn, or the fine yarn can be made, but all three are made, and their products must be disposed of. This is not always a difficult problem, but is in many cases; a similar condition is repeated at each oval of Figs. 3 and 6.

Only those ovals next preceding the squares of Fig. 4 when used as "filling" with Michler's Ketone as "warp" produce the twenty-four dyes there listed; the other ovals are merely contributory to such final ovals. The squares of Fig. 6 when used as "filling" with benzidine as "warp" produce part of the "filling" needed to make eighty-two of the benzidine direct cotton dyes, not shown.

In Fig. 3 there are upwards of forty points where the above parallel of jackets, socks and mittens has to be worked out, but under different conditions, and with different products and different market-conditions in each case; serious and important in most of the cases, and of little importance in but few. In Fig. 6 there are over sixty such points. So, for these one hundred six dyes or "patterns" there are about one hundred points where the factory and sales divisions must cooperate as above described; team-work of the highest order.

That is, in these one hundred six dyes important points of economic balance between intermediate products occur about one hundred times.

For the nine hundred dyes of the United States market there are probably several hundred such points, and they must be solved if a complete and independent coal-tar dye industry is to be created here.

From the actual manufacturing view-point this is not at all an insoluble problem for this country, but no one will deny that it is a difficult and hazardous problem commercially, and its ultimate solution will be quite different from that in Germany.

Here we will have to work it out in competition with a worked-out and operative method while we will have to go ahead slowly and our speed will be governed by the accuracy of our knowledge of the markets for the finished dyes in this country.

For some time we will have to be dependent solely upon our own market as an outlet, while Germany can look to over thirty other countries as a source of revenue for its dye industry.

In considering Figs. 3 and 6 just bear in mind that each square or oval represents a separate and distinct manufacture calling for separate apparatus, oversight and management. In Fig. 4 the squares represent finished dyes or "patterns;" the ovals represent intermediates or "yarns." The annual output of each of these squares is by no means the same from square to square. The factory division will have to know, within reasonable limits, the annual amount of each to be made before it can operate to the best advantage. It can, of course, go ahead and build the several apparatus of a certain size and trust to developments to teach it how the different houses should be located with respect to each other and their relative sizes and then alter and change to suit the new conditions. That, of course, is slow and expensive. It might very well be that at the very outset the conditions had been misconstrued. It is the lack of this knowledge that is holding up general progress here more than any other single technical point or feature.

Obviously, the more information at hand as to the actual market conditions for each of these twenty-four dyes in this country the smaller the risk due to alterations and changes. Multiply these conditions so as to cover the nine hundred dyes of this market and you will have an idea of the magnitude and complexity of this one aspect of the problem alone. Just translate this problem to cover nine hundred different fabrics made up of three hundred different yarns and ten fibers, and no doubt its bewildering and puzzling nature and importance will more effectively be brought home

to you, particularly, if you keep in mind the bye-products feature of the problem.

Or, to put it another way. Suppose each oval and square of Figure 3 to be a separate building or portion of a building and give yourself the problem of laying out a hundred-acre lot with its buildings so adjusted as to size and so arranged as to relative position that no motion or efficiency loss results and to provide for nine hundred squares and three hundred ovals. The first thing you would want to know would be the size of the various buildings, and these are determined by the size of the squares and these in turn by the output expected of them, and this is governed by their respective markets in this country. Then add to this, the problem of properly arranging your apparatus in each building and in the proper building.

Take $15,000,000 as the total annual value in this country of these nine hundred dyes; this makes the yearly grand gross average for each dye $16,667 or $56 per day. That is, the gross income for each dye will be on the average $56 per day. However, we know, that indigo alone is about one-tenth of that total of $15,000,000, and that therefore its daily average is $5,000, and that reduces the grand daily average of the remaining dyes to $50.

The grand average daily gross of each of these twelve hundred intermediates and dyes is $42.

With an average of $42 and a maximum of $5,000 per day, it must be very obvious that it is not an easy matter so to plan the lay-out of a plant of this kind as to be sure that serious and expensive error has not crept in.

But the complexity of this problem is not reduced by the fact that these squares and ovals are not all the factory buildings or their equivalents that are needed. You need sulphuric, muriatic, nitric and acetic acid plants, caustic soda, chlorine and many other similar plants, none of them here shown. How large shall these be and where shall they be located and what amounts of all raw materials shall be contracted for? These are all questions that must be disposed of before progress can be made in establishing a complete, self-contained and independent industry.

To my mind, there is no escape whatever from the conclusion, which I have elsewhere stated, that the fundamental information required for the solution of this national problem is that as to actual domestic market conditions of these 900 dyes or "patterns." Proceeding without such knowledge is accompanied by excessive risk and therefore progress under these conditions must be made cautiously and consequently slowly.

Surely, in such a long line of intermediates and finished dyes there must be several points of entry for a domestic industry, complete and independent. Which is the point of successful entry? That is the rub! Some domestic makers are trying to break in along the line of analin oil; others by the way of para-nitraniline and beta-naphthol; others are considering indigo, others alizarine, and still others are thinking of a wool-black as the point of entry, and so on. Which will succeed, some or all, can be answered by events alone. They may all have guessed right or some or all may have guessed wrong. In any event, these attempts must each result in a partial solution only and will require much time. These attempts, being made at widely separated points, it follows that at each such point much duplication of labor and expenditure must occur. That is, there will have to be duplication of the various auxiliary chemical plants, and similar contributary factories. Such a campaign must necessarily lead more slowly to a complete and self-contained solution of this problem than would concerted action at a single plant. Reduced to its simplest terms and supplemented by considerable knowledge the problem is simply bristling with constructional, technical and merchandizing difficulties, quite apart from the economic obstacles in its way.

As examples, analin oil, as such, is roughly $400,000 per year, or $1,333 per day, or thirty-two times the grand daily average. However, analin oil enters into all the dyes of Figure 3 by way of Michler's ketone and in addition as "filling" in twelve dyes or "patterns;" it makes up about thirty-five per cent. by weight of all these twenty-four dyes, based upon a common unit of ketone. Anilin is one of the materials for indigo, and its progenitor—nitro benzol—is used in making benzidine, and anilin oil is used in making many of the auxiliaries or "fillings" in many of the benzidine dyes. Now, how large must an anilin oil plant be to make the necessary anilin oil and nitro benzol for

1. The anilin oil market.
2. The indigo market.
3. The ketone dye market (Figure 4).
4. The benzidine dye market (Figure 6).

From our commerce reports Number 1 is about $400,000 and Number 2 is about $600,000: but there is no way of telling from these reports how large Numbers 3 and 4 are. Numbers 1 and 2 call for about 10,000,000 pounds, $1,000,000 of analin oil a year, of which only $400,000 or 40 per cent. are actually used in this country today. Numbers 3 and 4 make up another 10,000,000 pounds or only 1,000,000 pounds analin oil or nitro benzol? At $1,000,000 per year this makes the anilin oil share two-thirds that of the indigo share, or $3,300 per day; this leaves for the remaining squares and ovals a grand daily average of onlv $35; that is, these two items of indigo and anilin oil have cut the grand daily average of the 1,200 squares and ovals from $42 to $35 or a reduction of 16 per cent.

How much larger must the plant be to provide for all the anilin used in the remaining dyes used in this country?

Para nitraniline is said to be anywhere from 400,000 pounds up to 2,000,000 pounds, according to the source of information and beta-naphthol varies the same.

Assuming that their consumption is each 2,000,000 pounds and with para at 20 cents a pound makes it $400,000, and with beta at 8 cents a pound is $160,000. That is, the daily average of para is $1,333 and of beta $533. These two again reduce the grand daily average of each square and oval to $33: that is another reduction of 7.9 per cent. or a total of about 25 per cent. This amount

of para would call for an additional amount of about 2,000,000 pounds analin oil per year.

Alizarine may be $400,000 per year; this reduces the grand daily average to $30.

How large will the wool-black market be? There are no official figures to give even a guide to a guess. The best type of wool-black calls for 23 per cent. salicylic acid, 24 per cent. naphthylamine and 38 per cent. naphthol sulfo acid, by weight.

How large shall the salicylic acid plant be? How much carbolic acid must be provided? How much naphthylamine and how much naphthol sulfo acid? Without a reasonable knowledge of what the total consumption of wool-black is, who can make even an approximate guess?

Then comes the questions: What share of this total market is your particular plant going to get? If not all of these nine hundred dyes are to be made, which ones will you omit?

It is therefore clear that a mere knowledge of grand averages and of maximum amounts is of little help in planning the layout of an establishment of this kind, as nearly definite information as possible for each of the nine hundred finished dyes should be at hand in order that a reasonably safe layout may be made.

Some of the difficulties just mentioned would be reduced, but not eliminated, if reasonably complete information as to this country's markets were accessible to those who are endeavoring to solve its problem for the nation, but those who have this information are of two classes, and they will not divulge it, namely, the importers collectively, and they certainly cannot be expected to hand it over; the others are the dye-users collectively, and they decline to give it. The Government does not have it and cannot spell it out of its records.

I doubt if there is any one thing that the dye-users of this country can do that promises to push this problem further along towards a technical solution than to collect this information in a dependable manner, and make it accessible to prospective dye-makers. If, with that knowledge available, the problem cannot be technically solved, the chances are that it never can be so solved. In the event of a successful solution, while this information is withheld, that knowledge will have to be acquired by the slow, laborious and expensive method of "cut-and-try," that is, of "feeling-out" the market.

## INSURANCE METHODS FOR PAYMENT OF LARGE LOSSES

By JOSEPH P. GRAY, President, Boston Manufacturers' Mutual Fire Insurance Company, 31 Milk St., Boston, Mass.

For the past ten years, or since the Salem conflagration, which resulted in the loss of a cotton mill insured in the Mutual Companies, the stock insurance interests have been most actively engaged in circulating misleading statements regarding the ability of the Factory Mutual Companies to pay heavy losses. It has never been the custom of the management of the Factory Mutual Companies to publicly answer such statements. They have felt that they were answerable for the conduct of the business only to the members of the Factory Mutual Companies. For this reason, when the invitation was kindly extended to me to speak to you on the subject of the ability of the Factory Mutual Companies to pay large losses, I hesitated to do so, but knowing that the great majority of the cotton manufacturers connected with this Association were also members of the Mutual Companies, I concluded that it was a duty and a privilege to accept the invitation.

The ability of the Factory Mutual Companies to adjust and pay large losses is best shown by the result of the settlement of the Salem loss. This loss amounted to $3,177,022.73. Before the amount of the loss could be determined, the European situation had completely upset the financial conditions in this country, with the result that, for the time being, it was practically impossible to dispose of securities, even of the gilt-edged class owned by the Factory Mutual Companies. In spite of these conditions, the loss was quickly adjusted and paid for. A still stronger indication of their ability to settle large losses is the fact that payment of this loss reduced the combined assets of the companies interested only 22 per cent.

The business of the Factory Mutual Companies has always been conducted along certain definite lines, and in accordance with certain definite principles. The plants which they insure are wholly of the manufacturing class. They insure only properties which are constructed according to the best methods and fully protected by automatic sprinklers, pumps, pipes and hydrants. These properties are inspected four times a year by an efficient corps of experts, whose business it is to see that the general order and care of the property is fully maintained, and that the fire apparatus is kept in an operative condition. The numerous letters of commendation received from our members is proof sufficient that they are doing their work properly. The Inspection Department maintained by the Factory Mutual Companies is the largest, and generally acknowledged to be the best one of its kind in the world.

For the payment of all losses which may occur, and to reimburse the companies for expenses incurred, each member deposits with the company, when his policy is taken out, a certain amount of money, which, for convenience's sake, is termed "gross premium." This premium deposit is held by the companies in trust. On expiration of the policy, the losses and expenses which have occurred during the life of the policy are taken out of the gross deposit, and the entire balance returned to the member. During the eighty years' experience of these companies, the premium receipts have been ample to take care of all losses and expenses, and at the same time return a very handsome balance to the members. No assessment has ever been made on the policy holders. What better proof can be shown of the ability of the Factory Mutual Companies to meet any losses which may occur?

Experience has demonstrated that in properties of the character of those insured in the Factory Mutual Companies, not over one large loss is liable to occur within a year. With this experience

before them, the management of the companies in their early days fixed the maximum amount to be carried on a single risk at one-half the total yearly premium receipts. Later on, as the companies grew in size, the ratio between these two amounts was increased, until today it is one to five. It will thus be noted that the Mutual Companies' percentage of liability has been decreasing, although in amount it has been increasing. If factory mutual insurance was safe and strong in its earlier days, as it undoubtedly was, how much stronger it is today with our manufacturing plants fully equipped with sprinklers, pumps, pipes, and hydrants, and the relation between the maximum hazard and the premium receipts two and a half times greater than it was.

One of the strongest features in connection with factory mutual insurance methods is the ability of the companies to quickly recover their finances after heavy losses have occurred. When a large loss like the one caused by the Salem fire occurs, the entire amount is recovered from the members within the year, or within the life of the policies which are in effect when the fire occurs. In other words, when all the policies which were in effect when the fire occurred have expired, the finances of the company are back in the same condition that they were before the fire.

To the contrary, when a stock insurance company suffers from a large conflagration like San Francisco, it either takes many years to bring its assets back to their former condition, or new capital has to be brought in to strengthen the finances of the company.

It is now eighty years since the first Factory Mutual Company was organized, and during that period there has never been a failure of one of these companies. All their losses have been paid in full, and no member has ever had to resort to the courts to obtain payment of same. This is a record, I think, that no other class of insurance company can show.

The loss of the cotton mills in the Salem conflagration has been the cause of the question being raised: Are the mutual Companies liable to suffer to a greater extent by a conflagration in one of our larger mill cities like Lowell, Lawrence, etc.? By those who are well informed of the conditions, such a catastrophe is considered to be practically impossible. Taking Lowell for an example, the water supply for the protection of the mills is entirely independent of that furnished by the city. This water supply is derived from a large reservoir on the heights above the city and from large fire pumps located in each mill yard. This reservoir and the fire pumps are connected to large circulating mains which pass throughout all the mill yards in the city, so that the entire amount of water supply is available at any point in any mill yard. The result is that from forty to fifty streams of water are available from this source. It will thus be seen that, if there was a large fire in progress in the city proper which required the full service of the city fire departments and the public water supply, the mills themselves would be able to take care of any fire which might attack them from the outside. Experience has demonstrated that the protection which each mill can give the other more than overcomes any hazard which may be connected with their nearness to each other. The canals in cities like Lowell and Lawrence also add considerably to the protection of not only the mill properties, but the city itself, the steam fire engines being able to take their water direct from the canal itself, instead of from the public mains, thus leaving the latter available for hose streams.

The following incident illustrates how inconsistent the stock insurance companies are in criticising the conditions in Lowell. In accordance with our usual methods, we had a careful examination made of the conditions in this city to see whether our conclusions were correct or not. We found that there was one possible weak point in regard to exposure. Our engineers, after a careful exination, reported what should be done to remedy same. This was submitted to the management of the corporation affected by the exposure, with the result that they concluded to place their insurance with the stock insurance companies, rather than to provide the protection needed. It is reported to us that the insurance was written with the understanding that no additional safeguards were to be provided.

While the Salem loss is the only one of its kind which has occurred in the entire eighty years' experience of the Factory Mutual Insurance Companies, this loss brought sharply to the attention of the executive officers of the Factory Mutual Companies the fact that there might be some danger in our smaller cities and towns where the companies insure single plants like the one above mentioned, and where danger from the outside had not been anticipated. The executive officers of the companies are now giving their close attention to these cities, and wherever any danger develops, it is proposed to have it fully safeguarded against.

The management of the Mutual Companies have always tried to not only profit by experience, but to anticipate what may occur. Being human, they sometimes fail, but when it is considered that, in the eighty years' experience of the Factory Mutual Companies, the Salem loss is the only one which has been caused by the conflagration hazard, I think it will be acknowledged that the past management have done fairly well in guarding against same. The present executive officers are not satisfied, however, with what has been done, but they propose, if possible, to do even better.

In conclusion, I wish to state that, while the loss mentioned was an unfortunate one, the management of the Factory Mutual Companies have nothing to apologize for. Those mills were excellently constructed, had ample protection, and would have been standing today if the burning of the homes of the members of the fire brigade had not drawn them away from the mills, and if the public fire departments had paid any attention to the property. It should be noted that the Salem conflagration originated in a mill building which was of such a dangerous character, owing to its construction, occupancy, and lack of protection, that it was unfit for insurance in any company. It is stated that the conditions in this building had been brought to the attention of the insurance companies insuring the same, with no results. The

owners of the building, primarily, and the insurance companies insuring it, secondarily, are responsible for the conflagration which took place.

## FURTHER RESULTS OF MOISTURE TESTS ON AMERICAN COTTON AT THE HAVRE CONDITIONING HOUSE

By D. E. DOUTY, United States Conditioning and Testing Company, 340 Hudson St., New York City

At the Atlantic City meeting in October, 1913, I presented to the Association a brief report upon the results which had been obtained at the new Cotton Conditioning House at Havre during the first five months of its operation The report covered 19,939 bales, or approximately $9,969,500 pounds of cotton, and the result showed that a portion of this amount gained upon conditioning 39,090 pounds, and that the remaining portion lost upon conditioning 82,688 pounds.

The loss and gain was computed upon the basis of a standard regain of 8 1/2 per cent. These results, although of a preliminary nature, seem of such vital importance to the American cotton manufacturers, that I have made an endeavor to keep in touch with the further work of this special cotton Conditioning House, with the intention of reporting from time to time to this Association.

During last summer I arranged to visit the house in order to observe the methods employed in sampling and testing, and to obtain first hand information upon the extent to which the results were being applied. I was unfortunate in having planned my visit to Havre for July 13 and 14, which happens to include the French Independence Day. During this period it is customary throughout France to have three or four days holiday and celebration. The house was therefore not in operation and I was compelled to cancel the visit.

Having been prevented by the declaration of war from returning to Havre later in the summer, I endeavored to obtain further information by corresponding with Monsieur A. Longre, the manager of the Conditioning House and Monsieur Berger, secretary of the Syndicat General de L' Industrie Cottoniere Francaise.

The statements made by these gentlemen seem of sufficient interest to justify their publication in this connection for the benefit of American manufacturers.

In order to make the correspondence clear, both the inquiries and replies are included.

New York, Jan. 27, 1915.

Syndicat General de L' Industrie Cotoniere Francaise, 9 Rue Saint-Fiacre, Paris, France.

Sir,—A question has arisen in this country as to the extent to which the work of the Bureau de Conditionnement des Matieres Textiles Le Havre is being applied by the members of your Association.

Will you kindly inform me at your earliest convenience if your members have found it possible to make their purchases of raw cotton upon the basis of conditioned weight. If so, how extensively is the practice followed in the French cotton trade, and is the advantage to the trade sufficient to justify the expense and inconvenience.

There is a growing sentiment among the cotton manufacturers in this country to base textile transactions upon conditioned weight.

We have watched the action of your society with interest, and would like very much to know the success of your undertaking.

Any information or printed reports which you can furnish me will be very much appreciated.

New York, Jan. 27, 1915.

Monsieur A. Longre, 8 Place, Jules Ferry, Le Havre, France.

Dear Sir,—I was very much disappointed at being unable to visit your laboratory the early part of last July, following the arrangement which was

D. E. DOUTY

kindly made with Mr. John Ball Osborne, the American Consul.

It is natural that the cotton growers and brokers are not very enthusiastic upon the subject. We should, therefore, like to obtain all the information which your house has secured during its operation in order to assist us in forming a judgment as to whether the buying and selling of raw cotton on conditioned weight can be successfully conducted.

Any information which you can send me will be very much appreciated.

Paris, Feb. 25, 1915.

Mr. D. E. Douty, General Manager, United States Conditioning and Testing Company, 340 Hudson St., New York City.

Dear Sir,—I wish to acknowledge your letter of the 27th ult., received on the 15th inst. and re-

ferred immediately to M. Longre, director of our Conditioning House at Havre.

I enclose some notes prepared by M. Longre, which I hope will assist you in your undertaking.

Until now we have been able to obtain no interest on the part of our cotton houses at Havre, but we have not lost our courage and hope nevertheless to induce them to take account of the excess humidity found in cotton received in Havre.

Existing circumstances compelled us to discontinue the tests at the Conditioning House, but as soon as affairs become normal we will resume our regular testing at the Conditioning House and will devote all our efforts to urging our wishes upon the regular cotton brokers. If your American spinners themselves will insist upon obtaining the terms of purchase of which you speak in your letter to us we will very quickly win the cause. The English as well as the Italians and Spanish will seek immediately to follow our example and carry on business with America more accurately and honestly.

Labor with your cotton spinners and persuade them to establish conditioning houses which will enable them to insist, with proof in hand, for the reform which they desire to obtain in the sale of cotton.

Keep us in touch with what you are doing and with what you accomplish, and we will cooperate with you to the end that the just cause which we defend may triumph.

We have not continued the work of the conditioning House, first on account of the lack of the personnel, and especially because we considered the tests which we should be able to make as not being accurate, the cotton received since the beginning of the war and still arriving at Havre and later at the mills in deplorable condition. Cotton shipments are subject to rain and exposed to moisture during excessively long periods. It has for this reason been impossible for us to make tests of real value under the conditions existing here.

Kindly accept, dear sir, the expression of my sincere regards. C. Berger.

Le Havre, Feb. 22, 1915.

Mr. D. E. Douty, General Manager, United States Conditioning and Testing Company, 340 Hudson St., New York.

Dear Sir:—I wish to acknowledge your favor of the 22nd of February, forwarded to me through the kindness of M. Casimer Berger, president of the Syndicate General de L' Industrie Cotonniere Francaise, who will also reply to you.

I regret very much to have missed your visit of last July, and hope that on your next tour in Europe you will not fail to come to Havre where I shall be pleased to meet you if you will be good enough to notify us of your visit in advance, and inform me of the date you are to arrive.

I send you herewith a detail of our recent tests giving the results upon 64,000 bales tested from September, 1913 to July, 1914. Our staff of employes having been mobilized for the war since the 1st of August. I must transcribe by hand this information which is dormant on account of recent events and which we have been unable to print as we had intended.

You will notice that we have tested a large number of bales, the French manufacturers being very desirous of obtaining useful information which we give them, at the same time, as we test for those who apply conditioning in order to arrive at an agreement with the cotton brokers for the settlement of their account upon this basis.

Shortly before the war, all the cotton manufacturers of the continent formed into an International Federation of which Mr. Macara of Manchester is the president, had decided to install similar establishments to our own in all ports of entry for raw cotton in their country. That is to say, all of the European nations are to have their conditioning house for raw cotton. There has only remained this means for imposing this equitable condition upon the cotton merchants in America. Likewise our manufacturers will review with pleasure their American colleagues joining efforts with theirs to the end that a more rapid solution of this interesting question will be obtained.

It has been agreed here, where cotton yarn is sold upon conditioned basis of a regain of 8 1/2 per cent., that we should adopt the same rate for our tests. At the same time it is not compulsory, a transaction may be adjusted afterwards between the buyer and seller. Some tests of regain and moisture, to which I have devoted myself, show that the raw cotton will absorb a little more than 1/2 per cent. more than yarn, about 9 per cent., and still it is not always regular. Certain tests have given the same average regain for the two materials.

We are not surprised at what you say regarding the cotton planters who have little enthusiasm for our intervention in determining the humidity, although for a long time the manufacturers have not been satisfied to receive cotton of which the moisture content is sometimes excessive and to pay for it as though it were normal.

It is natural and it is just that there should come a day when they can make accurate deliveries of the number of pounds of cotton sold or it may be said a delivery of moist cotton is equivalent to a delivery weighed with false weights or badly weighed.

We hope this information meets your needs and await commands if any further information will be useful to you.

On my part, I hope that you will always keep me informed of the decisions or projects in your country for which I shall be very grateful.

Kindly accept, my dear sir, my kindest regards.

A. Longre.

It is apparent from these replies that while the conditioning has proceeded in Havre under the directions and with the powerful influence of the Syndicat General de L' Industrie Cottonniere Francaise the results have not found extensive application in the raw cotton market. It is evident that the French cotton brokers and the foreign representatives of American houses have such complete control of the French cotton market that it has been impossible for the spinners and manufacturers to reform the transactions in raw cotton on a conditioned basis.

It appears that to accomplish this will require a strong international movement, and in this the American manufacturers can, if they so desire, exert very effective influence. The results fur-

nished by Monsieur Longre covers what may probably be called the last cotton season. It extends from Sept. 23, 1913 to July 31, 1914.

[Reference is made to a number of tables which can be obtained on application to the secretary of the Association.]

(continued on page 251)

## THE SOUTHERN NEW ENGLAND TEXTILE CLUB

The fifty-first meeting of the Southern New England Textile Club was held at the Bancroft House, Worcester, Mass., on April 24, and proved to be a record breaker both for the large number in attendance and the high character of the speeches. Nearly three hundred members were present with an equal number of guests, making a total of six hundred, who came from different sections of New England by train and automobile. The meeting was in charge of a special committee headed by Fred W. Steele, agent of the Fisher Mfg. Co., Fisherville, Mass., assisted by several well known mill and machinery men of Worcester. Before the dinner a number of those in attendance were entertained at various manufacturing establishments in Worcester. The Crompton & Knowles Loom Works kept open house all day for the benefit of out of town members of the club, who had an excellent opportunity of inspecting the processes of loom building.

During the dinner there was a vaudeville entertainment consisting of excellent dancing and singing, which was thoroughly enjoyed by all. After this entertainment President Dexter introduced Alderman Lincoln, who in the unavoidable absence of the Mayor, delivered an address of welcome. Congressman Winslow of the Worcester district, spoke on the importance of a better understanding between employes and the public regarding political issues and urged the manufacturers to confer with their employes and explain how important it is to both sides that unwise legislation should be avoided. Alfred L. Aiken, the New England representative of the Federal Reserve Bank, delivered a very instructive address regarding the operation of the new banking system and its possibilities for good. The meeting closed with an eloquent address by Edward J. Cattell, of Philadelphia, who held the attention of his hearers for nearly an hour while he preached the doctrine of optimism.

In the evening the hotel management set aside a large room for members of the Club and there were many who enjoyed this hospitality in the form of a jollification meeting. All present were loud in their praises of the managers of the meeting and of the hotel. The desire was expressed on all sides that at least one meeting each year should be held at Worcester.

## TEXTILE EXHIBITORS' ASSOCIATION

At a meeting of the Board of Directors of the Textile Exhibitors' Association, Inc., in Boston, Friday, April 30th, it was voted that the National Textile Exhibition would be held in Mechanics Building, Boston, April 24 to 29, 1916. The exhibition, according to the plans as discussed by the directors, is only one of several big features that they will plan for a Textile Week that will have a national scope. They will make every effort to get all of the big national textile associations to meet in Boston during that week. The Boston Chamber of Commerce will also be invited to cooperate while the department stores and wholesale dry goods houses will be invited to participate in the elaborate program that will be outlined later.

General Manager Chester I. Campbell submitted the space plan of the exhibition and it was approved of by the Board of Directors.

Seven new members were elected. They are Philip N. Reynolds, representing Scott & Williams of Boston; A. S. Fuller, representing John Hetherington & Sons, Ltd., Boston; Samuel F. Rockwell, representing the Davis & Furber Machine Co., North Andover, Mass.; A. T. Bruegel, representing the Hess Bright Mfg. Company of Philadelphia; Max Nydegger, representing the Grosser Knitting Machine Co. of New York; Frank J. Hale, representing the Saco Lowell Company of Boston, and Edwin H. Marble, representing the Curtis Marble Machine Co. of Worcester, Mass.

# The National Association of Hosiery and Underwear Manufacturers

The eleventh annual meeting of this organization and the exhibition held in conjunction with it during the week of May 3rd-8th inclusive, brought to the Armory Bldg., Broad and Callowhill Sts., Philadelphia, a large gathering of hosiery and underwear manufacturers from all parts of the United States. The number of Southern and Western manufacturers present was particularly noted. The attendance at the convention meetings frequently filled the hall in which they were held and on several occasions there was standing room only. These regular sessions were held on the mornings of Tuesday, Wednesday and Thursday, during which time the exhibition was closed. The social feature of the week was the complimentary supper, smoker and entertainment given to the members and exhibitors on Wednesday evening in the Parkway Building where a very pleasant evening was enjoyed.

These annual gatherings of the knit goods trade and the opportunity for getting together in the exhibition hall for several days has brought about a feeling of good-fellowship and acquaintance which in itself is a very desirable feature in any trade. The designation of the "Happy Family," which has been applied to the gathering, is quite appropriate.

The first business meeting was called to order by President Charles E. Leippe and Herman Loeb, Chief of the Department of Supplies of the City of Philadelphia, delivered an address of welcome in the absence of Mayor Blankenburg. He spoke of the urgent necessity for revision of the tariff to protect the manufacturing interest and particularly the hosiery and knit goods trade, from foreign competition after the war was over.

After the address of welcome, Edward J. Cattell delivered an address of which the key note was "optimism." Mr. Cattell is an orator of no mean order. His address was inspiring and his audience were interested and greatly amused by his wit and humor.

The second address was delivered by Philip Hough on the subject of "Export Possibilities." Mr. Hough spoke from the standpoint of practical experience in selling knit goods in foreign countries.

### EXPORT POSSIBILITIES

By PHILIP HOUGH, of John M. Given, Inc., New York

For the manufacturer who has up to now only dipped into export trade, there are many things for him to consider if he really means to get it, and my suggested change of title, "Export Certainties" would only apply to manufacturers who are going to make a practical study and equip themselves to meet the varying requirements of a world wide market.

The knowledge that the export manager of a manufacturing house should have to do a world wide foreign business is very varied and very extensive. It must include a knowledge of foreign exchange, ocean freight rates and shipping, international banking, commercial geography, a knowledge of the tariffs of foreign countries, so as to vary the manufacturing of his goods to enable the foreign customer to import them under certain classes of the tariff as he requires, and so save unnecessary duties, and a knowledge of the manufacturing resources of other countries.

I want to say something I think worth considering, with regard to sending out samples. Most manufacturers whose samples are of value require the prospective foreign customer to pay full price for them, and they do not realize that this firm pays duty on them to get them into the country. For instance, a firm in Brazil receiving $3.00 worth of samples of silk hosiery might pay three or four times this amount for duty on them, so that when a sample discount is requested, it seems only fair that this should be granted by the American manufacturer. The English and European manufacturer allows it. Just recently in Paris I received about $2.00 worth of samples and paid $7.00 duty on them.

Some day the House seeking export trade will probably give consideration to sending out a foreign traveler, and the choice of this representative should be carefully made. Much has been written on this subject so that it seems unnecessary to reiterate the well known fact that the foreign traveler should be less of a salesman and more of a commercial ambassador. The American salesman who goes abroad with his American selling methods is a liability rather than an asset. He must necessarily be one of the most expensive men on the payrolls of the company and so should be a worthy representative. It is impossible for anyone who has never traveled in a foreign market to realize what must be done in the way of payment of taxes, making out papers at the ports

in order to clear samples from the customs, what a knowledge of foreign banking such a salesman must have, etc., etc. I have deposited as much as $400 American to clear my samples from the customs and have spent four days very many times getting through the red tape of the custom house. The type of salesman who has gone to Latin America has especially been criticised as unworthy of being sent out. In the first place, he has to learn that there are other Americans than himself, and the South American insists that he is a North American.

Your foreign traveler should have a knowledge of foreign currencies, although the quotations he makes may not go beyond sterling and francs. I myself have used 25 different kinds of currencies in the last three years, and so can appreciate the value of this knowledge. He must, moreover, and above all, have a good knowledge of the language of the country to which he is going. He can get along without this knowledge, but so many obstacles and annoyances will present themselves, and he will be so handicapped as to find himself only about 25 per cent. efficient.

CHARLES E. LEIPPE, RETIRING PRESIDENT OF THE ASSOCIATION

Within the last nine months every export market has been very seriously depressed because of the European War, and today we find that stocks of goods are so depleted everywhere, with no prospect in sight of the war ending, so that buyers can get further quantities of their usual goods from their usual sources, that these buyers who have waited so long are now forced to buy, and forced to buy in the United States. Manufacturers of many commodities in this country have made large sums of money on goods sold at high prices to the warring nations and orders for these army supplies continue to come in, and, in all probability, will come in for some time to come.

Aside from this army business, however, the whole world has commenced to buy their general requirements from this country, and the number of manufacturers who have commenced advertising for export within the last few months, shows that a movement is on foot to secure this export business. There is little likelihood that the war will end soon unless neutral nations enter into it. This is not the opinion expressed in the English or French or even American newspapers, but it

must be remembered that whatever is printed in the newspapers is colored up in such a manner as to bring about increasing numbers of recruits. I have just returned from three months in Europe and feel that I have a fairly correct diagnosis of the situation. France has sent all her manhood to the front and she knows, on account of her decreasing birth rate, that it is more disastrous for her to lose men than money, and she is gritting her teeth as it were, fighting grimly, with a determination to overthrow Germany. England also knows that had this war been declared on her alone, she would have suffered severely as she was unprepared, while Germany has been prepared for some time to begin a war on a week's notice. England therefore will not agree to a settlement of the war that would reestablish conditions permitting Germany to be again a menace to the general peace of the world through her armed preparedness, possibly causing a renewal of this war within ten years' time, and so will fight on until Germany is exhausted. The Germans, however, come from a stock as virile and hardy as the Anglo-Saxon and as tough as the French, and they will not surrender to any conditions proposed by their enemies which would humiliate them. The only way that England and France could be satisfied that Germany would not enter into another war would be through the partial disarmament of the German navy and the curtailment of the production of the Krupp Ordnance Works, and Germany would never agree to this. At present Germany is drawing supplies from the neutral countries of Norway, Sweden, Denmark and Holland, and the fields and factories of Belgium and Northern France are being worked by her and for her, so that the prospect of starving her out is ridiculous. Business men know no patriotism and the merchants of the neutral countries around Germany are glad enough to sell her goods for which she will pay high prices.

Taking an impartial view therefore it would seem impossible that the war should end for many months and even then armies of occupation will remain until terms of peace are threshed out, and then will come the period of reconstruction, with the scarcity of labor and every country exhausted from the long struggle. In the meantime the United States will get all the business that the warring nations lose during the time.

Before the war, American hosiery and underwear sold in a wide range of foreign markets. I have seen American underwear all around the Caribbean Sea. I have seen it in England, Scotland and France. I know certain classes of underwear sell in Australia in large quantities, and I myself have sold certain styles to South America. American seamless hosiery sells everywhere. American seamless silk hosiery, especially, has been described as a "world-beater," and now when Chemnitz, the German hosiery manufacturing center, is paralyzed, the English mills and those of Italy and Spain cannot begin to supply the demands on them, and so the United States is taking orders for hosiery of all kinds for shipment everywhere. I have seen orders for American hosiery for the Gold Coast of West Africa, where white people do not form more than one-tenth of one per cent. of the total population, and if it sells there, where will it not sell?

The most satisfactory way for a manufacturer of hosiery or underwear to get export trade effectively, it seems to me, is for him to work through a large commission house handling knit goods in New York, or through a manufacturers' agent in New York. A hosiery or underwear mill is often times located in a small town, and it is impossible for the manufacturer to get in touch with the New York export houses, the forwarding houses who handle foreign shipments, the banks doing foreign exchange, etc. Foreign buyers coming into this country transact their business in New York, and mill agents who employ a man especially for this export business are better fitted to handle these buyers and all other export matters, not only on account of their being located in the export center of the country, but because they generally have a man schooled in export, who is widely traveled, knows several languages, and who can put through with perfect smoothness the business that would seem to the manufacturer to be very complicated.

I believe that there are many manufacturers in the knit goods trade who have never before this time given a thought to export. There are, nevertheless, manufacturers here, undoubtedly, who are doing, and who have been doing, a good export trade for some time. I believe that every manufacturer making satisfactory goods who takes up export trade now, at this time, seriously, is assured of success in securing a sound business, and one that is not liable to any periods of depression taking place in this country, but one which will supplement his domestic business to a satisfactory degree.

As I said in the beginning to such a manufacturer, the present moment, unparalleled in the annals of export trade, offers more than an export possibility or probability, but instead, an export certainty. The potentiality of business to come from so many foreign markets, aggregating so many millions of people, cannot be estimated and the basic perquisite to a foothold and ultimate success, is scientific export selling of (of course) satisfactory, marketable goods. An I first of all satisfactory goods.

Thomas Conway, Jr., of the Wharton School of Finance, then delivered an address on "Changes and Methods of Commercial Borrowing Under the Federal Reserve Act." Mr. Conway gave an interesting talk on the advantage that is likely to come to the business man under the new Reserve Act. He explained in detail just how this would come about and predicted that there would be fewer business panics as a result of it and that after the system had been in operation for some years, the business man would be able to borrow at lower rates of interest and under more favorable conditions.

The morning session was brought to a close by an address on "Marketing Knit Goods in Great Britain," delivered by Dudley Bartlett of the Philadelphia Commercial Museum. Mr. Bartlett has made a careful study of the wholesale dry goods trade in Great Britain and expressed his opinion that of all fields for the expansion of the knit goods trade in foreign countries, Great Britain offered the best opportunity. The credits were better, the terms shorter, the language is the same and their way of thinking and doing business nearer our own. He pointed out that all English buyers desired to have prices quoted to them on goods delivered in their own warehouses rather than f. o. b. New York. He also declared that a manufacturer must make up his mind whether he wished to sell the retail trade or the wholesale trade. He must do one or the other; it was impossible to do both, as the wholesale concerns would not buy from any concern which is also selling the retail trade. He considered it most advisable that American houses selling to English trade should have agents or representatives in London. The business could be handled with much better advantage by a representative on the spot, who can adjust any difficulties which may arise. Mr. Wentzel asked Mr. Bartlett how it was possible for American manufacturers to quote prices on goods delivered at the buyer's English warehouse in view of the present conditions where freight rates, insurance and delays, both on this side and the other side of the water, make it impossible for anyone to know two weeks or two months in advance what conditions might be. Mr. Bartlett admitted that present conditions were very difficult to meet, but he thought that the manufacturers stood a better chance of getting an order, even if he quoted a price on goods delivered which is high enough to meet all such contingencies than if he based his price f. o. b. New York. Mr. Wentzel was of the opinion that in a comparatively short time the foreign buyers would be more hungry for American goods and would be more willing to consider taking the burden upon themselves, instead of demanding compliance with their usual methods of doing business and placing all the responsibility on the manufacturer.

Wednesday morning session was opened by an address by I. F. Stone, President of the National Aniline and Chemical Co., New York City.

## MANUFACTURE OF ANILINE COLORS IN THE UNITED STATES

BY I. F. STONE

I am very pleased to appear before your very important Association, in order to state the facts and conditions in connection with the possible procuring of supplies of aniline colors from Europe, and their manufacture and possible development in the United States, and so answer publicly the deluge of inquiries which are reaching us daily from American textile manufacturers and other consumers of aniline dyes, as to the present and future conditions.

As regards the possible European supply, as it is well known by those interested, no supplies are now coming through from Germany, which is the principal source of supply for these products. Of the total consumption of dyes in America, it is estimated that about eighty per cent. is furnished by Europe, and of this quantity it is estimated that Germany furnishes about seventy-five per cent.; in other words of all the dyes imported from Europe, Germany furnishes about three-quarters and other countries about one-quarter. It might be supposed that the twenty-five per cent. of imports which have been furnished by other countries, particularly England and Switzerland, might be continued, but as a matter of fact these other European factories are unable to furnish them because they are dependent largely on Germany for their intermediate raw materials, and as Germany is now unable to furnish them these intermediate raw materials they are consequently unable to send us even their small proportion of the color supply. The United States is therefore now absolutely deprived of nearly eighty per cent. of their supply of aniline colors. When this supply will again be resumed it is impossible for any one to state at this time, but it is very apparent, however, that it will be some time before European shipments can come through again, and a still longer time before they can come through in regular quantities, as owing to the continuance of the war, European factories are very much interrupted in their manufacture through lack of labor, raw materials, etc., and will continue to be handicapped by these same conditions for a long time after the close of the war, whenever this may be. The prospect of American consumers, therefore, securing a normal supply of dyestuffs for a long time to come from European sources, is very uncertain.

American consumers are therefore turning for possible relief to American manufacturers, but if Europe has been supplying them with eighty per cent. of their consumption it is evident that American manufacturers have only been supplying them with about twenty per cent., therefore could only continue, in the beginning, to supply this percent-

age of the consumption, under normal conditions, and the serious question then is whether or not the American percentage can be increased, and if so, how quickly and to what extent.

I have stated that the American production is only about twenty per cent. under normal conditions ,but unfortunately even this small percentage could not be continued immediately, under war conditions, because American factories have been buying their partly finished, or what we call intermediate materials, from Europe, and making their colors from these intermediate materials, and immediately the war started shipments of these intermediate materials were stopped, and American factories were left, generally speaking, without any visible supply of these intermediate materials with which to make their colors.

It is not my intention to put before you a scientific or technical paper on the manufacture of aniline colors, but it will be necessary to give you some information as to how this is done so that you will better understant the situation. The manufacture of aniline dyes is really in three stages, that is, first from the first raw materials such as benzole, tuluole, naphthaline, etc., what is called the intermediate materials are manufactured, such as aniline oil, nitro-benzole, aniline salts, and a host of other products nearly three hundred in all, and from these intermediate products the aniline dyes are finally manufactured. The principal raw materials are natural products of the United States, benzole, tuluole, naphthaline, etc., and in normal times are sold at about the same prices here as in Europe, so that American manufacture starts out on an even basis with Europe as far as the supply of the first raw materials is concerned. It is in the manufacture of the second stage, or intermediate materials, that the American manufacturer encounters a check, as it was in the manufacture of these materials that European factories particularly Germany, excelled, even with their raw material at the same cost as could have been supplied by American producers, and it is for this reason that American manufacturers of dyes could buy cheaper from Europe than they could manufacture here, and were doing so at the time the war commenced, and the shutting off of the shipments of these products at the beginning of the war, as I have already stated, left American factories without any visible supply of these materials with which to make their colors.

Obviously then, the only thing they could do in order to continue their manufacture of colors, was to make their own intermediate materials, but the beginning of their manufacture is at once attended with the investment of a large amount of money for factories and machinery—really the starting of a new factory in addition to their aniline factory—and an immediate increase in the cost of these intermediate materials as a result of higher manufacturing conditions in the United States and a consequent higher cost for the aniline colors made from these higher priced intermediate materials, and the manufacturers of colors here are therefore confronted with the proposition of whether they can afford to risk the investment of this large amount of capital and the possible accumulation of a lot of high priced materials, which they could not sell at prices based on their increased cost in case the war should end and more or less normal conditions be again resumed in a short time.

The only possible solution of this problem, which would protect them in normal times in the development of this industry, would be the help of the United States Government in the way of a higher tariff which would prevent the importation of colors at a less price than they could be manufactured here, and some sort of anti-dumping clause which would prevent the selling of colors into this country at lower prices than they are sold elsewhere, in order to prevent their successful manufacture here. A number of conferences between American chemical manufacturers and officials of the Government have been held, and while the Government shows every interest in the situation, particularly in the enactment of some sort of anti-dumping clause, and some time in the future will probably enact a proper tariff protection, it will probably be so long that it will not help out the present situation, and capitalists are not willing, therefore, to risk the investment of their money in these industries, under these conditions.

In spite of the many newspaper reports that a number of firms were about to engage in the manufacture of aniline colors in this country, I do not know of a single specific instance where any responsible firm or corporation is about to engage in their manufacture, reports to the contrary notwithstanding. There are a number of firms, however, about to engage in the production of benzole, and some to manufacture products like carbolic acid, aniline oil, etc., but these products are not aniline colors, and the confusing their enterprises with the manufacture of aniline colors has lead to the reports that the manufacture of aniline colors was about to be largely developed, and there is no foundation for this report as far as I have been able to ascertain as far as new factories are concerned. At the present time, therefore, the only manufacturers of aniline colors, are those who were in business before the commencement of the war, and to these factories American consumers will have to look for relief, for some time to come in any event.

Simply to show you how these American factories stand, in normal times, I quote from a report by Mr. Thomas H. Norton, Commercial Agent of the Department of Commerce, recently published by the Department of Commerce, in which he states on page 10:

"The four establishments devoted to the production of dyes supply nearly 100 colors, largely, however, as already stated, by "assembling" nearly finished products of foreign origin. These American firms are bold and enterprising, commanding about three million dollars capital, evidently doing the best they can under existing conditions to build up a national industry. Investigation shows that their advance, beyond certain limits, in the manufacture of either intermediate or finished dyes is persistently checked and prevented by the united action of German producers in underselling. The entire German color industry is so completely organized and accustomed to act as a unit in fur-

thering the general interests, at home and abroad, that little success in facing their determined opposition has heretofore been obtained."

This extract from this report will show you what the American manufacturers have done and what they are up against. Just at present, however, the times are not normal, and German competition therefore is not a factor in the situation at the moment. Speaking for our own factory, which is the largest of the aniline factories in the United States, we have started to manufacture these intermediate products irrespective of cost, because the American consumers were willing to pay prices which warranted our doing so under present conditions, but this is more or less a temporary condition, and it is the permanent condition which we are anxious to develop. As I have already stated, the Government can be of no immediate help in the development of this business, therefore the matter is really in the hands of American consumers, as if they are willing to support the American manufacturers for a sufficient length of time for them to get well established, i. e., continuing to pay prices for colors necessitated by the manufacture of intermediate materials here, the American manufacturers will then invest the money and increase their production to any extent which may be necessary, and I am very glad to say that many of the American consumers are showing a willingness to do this, as we have recently put before them a proposition to manufacture for them a certain color, which we call direct black, it being a color of the greatest importance and large consumption, and if they are willing to make contracts with us over a certain length of time, in this instance a year from the first of October, which from present advices a large part of them are very glad to do, we will at once increase our production of this particular color to large proportions, possibly enough to provide for the entire consumption, and the increase of this color will be followed by an increase in other large, important colors, under the same arrangement, as quickly as it can be done, and this then, is the quickest and best way to develop the American factory under present conditions.

It is regrettable that the manufacture of these intermediate materials under present conditions, is at much higher cost than under normal conditions, for the reason that many of the raw materials which are used in their manufacture are also used in the manufacture of explosives, and as the explosive manufacturers are willing to pay almost any price for supplies, the manufacturers of dyes are accordingly obliged to pay the same prices in order to obtain their supplies, the difference at this time being nearly three times as much as under normal conditions, which accounts for the high prices which we are obliged to ask for colors at this time.

Referring again to the black contracts about which I have just spoken, would say this is particularly interesting to your members who are hosiery manufacturers, as they are large consumers of black, and it has been found that our black can be used in such a way that it will replace largely sulphur and aniline blacks which have heretofore been used by many of them, so that there is no reason why hosiery manufacturers particularly should not be able to obtain all the black they can use by participating in the arrangement which I have mentioned in this address, viz., making a contract for their supplies for a length of time and at a price which will warrant our making the color for them without too much chance on our part; in other words, dividing the responsibility and reaping the mutual advantage of being able to have manufactured and secure adequate supplies under all conditions.

If we secure this help from American consumers, and reduce our risk by contracting as we have suggested, we believe by the end of the war the business will be so materially developed that the Government will see the necssity of continuing the manufacture of our products on a large scale, and then protect us by an increased duty as well as by the so-called anti-dumping clause before mentioned, and the business will then go on under successful conditions.

I might say in this connection however, that even at the present high prices, which are about three times the normal prices, the actual cost of dyeing to most hosiery manufacturers is a very small percentage of the cost of their manufactured goods, taking for instance the item of cotton hosiery, where in normal times the dyestuff cost, not including labor or other expenses, would be about $3.00 for one hundred dozen of the average socks, or say three cents per dozen, and even in these abnormal times, with the high cost of colors, the same operation can be done for about five cents per dozen; in other words, even at the present high prices for black the cost of dyeing is only advanced about two cents per dozen, which is an infinitesimal advance to the ultimate consumer who buys a pair of socks, therefore it seems as though manufacturers need only ask a slight advance for their product, which would enable them to pay the higher price for dyestuffs, and continue operations, so insuring consumers of a regular supply of their ordinary materials, socks for instance, at an advance so small that it would not be questioned by any one. These same remarks also apply to the cost of dyeing other materials as well as hosiery, which is an equally small percentage of the value of the material which is dyed, it generally being estimated at about two per cent., so that the increase in the price of dyestuffs only means a small increase in the cost of the finished material, and the important question therefore should be the securing of dyestuffs rather than the price, so that manufacturing operations can go on without delay, and eventually the price for American made colors will become more normal, and probably not be much more if any more than European colors, even if they are given the increased protection by the Government, as competition among themselves, if nothing else, would insure reasonable prices.

The point to this whole address is simply the fact that aniline dyes can be manufactured in the United States successfully from American materials, irrespective of European conditions, if American consumers of colors are willing to pay

prices which the extra cost of manufacturing under the present conditions, make necessary, and trust to the future to develop the industry to such an extent that they can work under normal conditions in competition with the world. If the consumers are willing to help, then the capital will be forthcoming to develop the manufacture to its utmost capacity, but if they are not willing to do their part, then there is no chance for the manufacture to develop at present to any extent, and the industry will continue to languish until the Government comes to the rescue by putting on a protective duty and enacting an anti-dumping clause, as mentioned.

P. C. WITHERS, ELECTED PRESIDENT NATIONAL ASSOCIATION OF HOSIERY AND UNDERWEAR MANUFACTURERS

Following Mr. Stone's address, President Leippe gave an informal report of the activities of the Association's Committee on dyestuffs, stating that they, together with Congressman Herman A. Metz, had visited Washington to see what arrangements could be made for getting more German aniline colors for use of American manufacturers. He spoke of their favorable reception by the different officials and stated that the officials in the State Department thoroughly understood the situation. Secretary Redfield of the Department of Commerce seemed to be very optimistic as to the ability of American dyestuffs and chemical manufacturers to meet the demands of the situation within a comparatively short time. But this opinion was not shared apparently by the members of the committee. President Leippe called on Mr. Metz to give his opinion of the present critical situation. Mr. Metz spoke along the lines of his talk at the Boston Convention, which is reported elsewhere. He stated that Mr. Stone had given a very fair and impartial statement of the situation from the American chemical manufacturers' point of view. It is a question of time and government support as well as the backing of the consumer that alone would enable an Amer-

ican dyestuff industry to be built up. We have the wrong materials, but it requires a great deal of money to turn them into finished products. He said the knit goods manufacturers, particularly the hosiery trade, were better off than many other branches of the textile industry, because they were principally interested in blacks and aniline oil and aniline salt, and these products could be obtained more readily than many others which were needed by cotton and woolen manufacturers. Mr. Metz took issue with Secretary Redfield's statement that six or more plants were about to be established to supply dyestuffs. He read the list furnished by Mr. Redfield and explained the situation in each case. He pointed out the great advantages that the German manufacturers have, through having written off the value of their plants and through their combinations for the interchange of by-products, which would not be permitted in this country by our anti-trust laws. He was of the opinion that the only way to relieve the situation in the near future was to get dyestuffs from Germany, and the only way to get them from that country was to insist on our rights as a neutral nation to send cotton to Germany, for otherwise Germany would not give permission to export the dyes to America even in American ships with England's permission to allow them to pass through the blockade.

Following Mr. Metz's talk, Lincoln Cromwell, of William Iselin & Co., New York City, delivered an address on "The Administration and Business Men," as follows:

## THE ADMINISTRATION AND BUSINESS MEN

By LINCOLN CROMWELL, of William Iselin & Co., New York

Fifty years ago this week the American Civil War was officially ended. Then began that dark page in our history, the Reconstruction Period. The war had left deep scars. Hatred and suspicion remained.

Today we are in another reconstruction period. We are rearranging business in its relation to private and national life. Public opinion says that we have finished our pioneer days, that the adventurer of the 19th century is not needed in the 20th, and that to free us from the peril of monopolies we must curb the individual and control private enterprise We have turned back the march of capital toward absolute power. Mr. Roosevelt denounced trusts and "put teeth" into the Sherman Act. Mr. Taft prosecuted them in the Standard Oil, Tobacco, and fifty other cases. Mr. Wilson's administration has pushed its court work into new fields, declaring that a combination like the Harvester Company is contrary to public interest however upright the management towards buyers, sellers or employes. But it has gone much further. It has coerced from Congress powers over business which no federal government ever had before, and which as they are used may either direct the vast energies of our trade along safe channels or become a Frankenstein to destroy our liberties.

### NEW POWERS OF THE PRESIDENT

Let us consider a moment what are the new powers hanging over this reconstruction period. From the start the President of the United States has had more personal authority than any constitutional monarch in Europe. He was commander-in-chief of the army and navy, commissioning all officers; he nominated the federal judges and every federal office-holder from the members of his cabinet to the custom examiners and village postmasters. He was expected to suggest legislation and had a veto power equal to anything less than a two-thirds vote in both houses of Congress. These were great powers in the hands of Washington, Jackson and Lincoln and were especially feared by the Democratic party with its love for states' rights and local self-government. Yet that very Democratic party has endowed Mr. Wison with authority never thought of by the earlier presidents. He appoints a Federal Reserve Board with autocratic powers over the national banks, the use of their reserves and the rates of discount. His Secretary of the Treasury and Comptroller of the Currency laid out the federal reserve districts and named the reserve cities to please themselves. The President appoints the Interstate Commerce Commission, now all-powerful under the Hepburn and Clayton acts. There is practically no appeal from its decisions. It controls railroad property worth $20,000,000,000, employing 1,600,000 people whose yearly wages are a third greater than the national debt. The Interstate Commerce Commission fixes the charges of the express companies, pipe lines and telegraph companies. Its rulings spell success or disaster to the whole country, and the trusts never in their boldest days dreamed of such power for their most experienced captains as we have given to the seven men named by the President of the United States for the Interstate Commerce Commission.

Now we have a third commission, one appointed by the President to see that we do not cheat each other in ways that few of us ever heard about. It is to set up standards of fair dealing and may hale us before the courts for failing to live up to its conception of what is right. But it has much opportunity to be constructive rather than critical and it is fair to say that the Federal Trade Commission has made a promising beginning and may become of great value in solving our commercial problems.

In describing the vast powers recently given the

President I have been careful not to suggest that they will ever be used for personal ambition. We need have no fear of the Man on Horseback. Public opinion is too alert, also independent, to tolerate a Napoleon in the United States. My purpose has been to remind you to what an extent we have transferred control over our business life from local officers and courts to men selected by the President from the far corners of the land. I wonder how many in this room can name the five members of the Federal Trade Commission or the states they come from, or tell what these men were doing before last March

Let us see now how its authority, old and new, has been used by this administration. How fairly has it dealt with people in its power, this government of higher standards and the New Freedom. I shall cite three examples, confining myself to admitted facts.

In 1913, the Interstate Commerce Commission investigated the express companies, and published a report that left them without a friend. The companies asserted that the overcharging and other irregularities proved before the commission were the acts of dishonest employees who had been punished as fast as caught, and asked that the whole evidence be published to show that it cleared the companies of any part in the offenses. This the commission refused to do. Then it imposed on the companies a new scale of rates supposed to be the last word in scientific regulation. They promptly drove one of the big companies out of business and in the others turned profit into a loss last year, of nearly $2,000,000. Meantime Congress was busy with the parcel post. When complaint was made of this government competition, an administration organ said there was "a touch of humor in the wriggle of the express companies to hold part of their business." Is it hard to imagine what the President would have said if one of the hated trusts had treated a competitor as the government treated the express companies? We can hear the scream of indignation if the United States Steel Corporation had first charged a competitor with the morals of a pickpocket, had then secured a law obliging that competitor to sell only at a loss, had got part of the business itself by selling still lower, and then indifferent to the competitor's plight had recouped its own losses out of the public treasury. That is exactly what the Interstate Commerce Commission and the Post Office have done to the express companies. Perhaps some one will say that the public benefit from a cheap parcels post justified the act. But I say that it was a procedure as unfair and dishonest to a legitimate business as any crime under the Clayton act.

Let us look at another case, that of the Alaska Northern Railroad. It was built by private capital to reach an Alaska coal field. Before the road was completed the coal fields were closed by the government. This last Congress appropriated $35,000,000 for a government railroad to develop those same coal fields and we are just informed with satisfaction that the Alaska Northern has been purchased by the United States for a price less than its physical valuation as estimated by the government's own agents. Has any railroad wrecker been accused of worse than this? Can we imagine Jay Gould showing the poor sense and the bad taste to boast that after first encouraging a road to build he had cut off its only source of profit, and then bought it in at less than cost when he alone could throw it business, and it must choose between a total loss and taking what he would give for it! That is what this administration has done to the owners of Alaska Northern. What theories of government ownership can square such action with the eighth commandment? Its advocates seem ready to persecute our public utilities into involuntary bankruptcy in order to substitute political management for private enterprise.

This administration scorned the counsel of business men in framing its tariff law, warning them away from Washington as if one and all they were robber barons. It framed the income tax law in defiance of security experts and nobody knows yet what it taxes. It pronounced the Federal Reserve Act "a perfect measure" while it was in a form soggy with Bryanism, its notes redeemable in whatever happened to be currency instead of in gold, and it resisted the amendments which corrected this fault. It defied the warning of commercial bodies everywhere in its struggle to jam through the Ship Purchase Bill, and it passed the Seamans' Bill which undoes our conventions with twenty foreign countries and creates new obstacles for ship owners. Add to this, while our revenues were rapidly shrinking, it appropriated the record sum of $2,231,000,000 in two years, and asked Congress for $84,000,000 more than it got.

The business wrong headedness of this administration reminds me of a story of Thaddeus Stevens. A judge had ruled against him on every point. The lawyer waxed hotter and madder as his motions were denied until completely losing his temper and slamming his books on a table, he strode toward the door upsetting chairs and growling with rage. "See here, Mr. Stevens," called the judge, "are you trying to show your contempt for this court?" "No, your honor," he replied, "I'm trying to conceal it."

These are some of the performances of officials who would redeem America from business men. With what promises they came into office! The robbery of a protective tariff was to be exchanged for a condition where everything sold cheaper, but wages were higher. Our factories were to run overtime on exports. Our farmers and merchants were to get money for the asking which was formerly kept back for friends of the Money Trust. An income tax was to trim the rich and lessen the burden of the poor. We were going to hearten 15,000,000 peons in Mexico by getting them ballots and making them owners of happy farms, and prove ourselves such a model of peace on earth and mercy mild that war the world around would cease to be. I would waste your time by detailing the failure of every item in this program. No retail prices were reduced by the Underwood tariff. It decreased our exports and increased the imports from the day it passed until the war broke out in Europe. Our factories have been on part time and our workment on breadlines. No man borrows easier or in any other place than before

the Federal Reserve Banks were opened. The income tax has been shifted on to the poor through higher rents and mortgage rates. There never was such a fiasco in government benevolence.

I began by saying that we were in a reconstruction period. How long it will last and how it will end depends most on us business men, for the reconstruction concerns us most. We can survive it best by showing patience and good temper. The country wants a rest from legislation and I doubt if any of the new laws except the tariff would be repealed by a Republican Congress. The income tax law may be changed and its collection simplified, but such a tax is likely to remain on the books.

What can we business men do? We can complete the education of a public opinion which will put fair men in office and bury the bogies which we fear in these radical laws. We can make it as impossible for the President to retain an arrogant or unworthy commissioner as to appoint a crooked or ignorant judge. We can secure the changes needed in the tariff rates by honestly presenting the facts. The war is a prohibitive tariff; but after the war—deluge. I do not believe the stories about huge shipments all ready for New York on foreign docks; but we know that all the European mills are running except those in Belgium and northeastern France, that they can have samples and prices here within any two weeks, and that the end of the war will see such a lack of buying power in Europe, and such dire need of their working no matter what the wages, that our market of 100,000,000 people will invite a flood of imports unless changes are made in the tariff. Mr. Redfield's letters to the Montgomery Co. Association end all hope of tariff relief from this administration.

American public opinion, once it knows the facts is the fairest verdict in the world. Let it be right and persistent, and it dictates to the citizen, to Congress, to the President and his commissions, and even to the Supreme Court of the United States. We business men will have in it just the voice that we deserve. Our voice must be strong, true and united. In time we should reach public opinion chiefly through the new Federal Trade Commission, substituting its expert rulings for the half-baked laws of demagogues and theorists. We must personally see that business interests reach it also through organizations like this, through the United States Chamber of Commerce and the local chambers of commerce, through the daily press and the trade papers. Through these channels to public opinion we shall prove our just standards and secure their respect. When this stormy time is passed, as pass it must, and measure is taken of those who worked well for a better day, I have faith that the men of business with their training in the give and take of commerce and the responsibilities of employer and employe will stand out among those who have learned best the conditions of American life; and that the business world will be found to number its full share of those who fix their horizon beyond the dollars and their hearts on the welfare of the United States.

## SECRETARY CARTER'S REPORT

The activity of our Association in the line of adjustment of claims and harmonizing differences of work has increased to very large proportions during the past year with great measure of success. One difficulty we have encountered in our adjustment work is the marked disparity of contracts that are used. We are quite sure that the adoption of a uniform contract with clear cut provisions would more satisfactorily protect both seller and buyer, would not only eliminate much of friction that now exists, but also make it easier to arbitrate obstinate and intricate cases. This question of uniform contract has been under consideration by our officers several times in the past, but no corrective action has as yet been taken. We suggest that a special committee be appointed to go into this matter at an early date, that they report their findings to our officers who be authorized to adopt and promulgate same without further delay.

The report submitted at our 1915 Convention on our Band and Label Clearing House Department was not too optimistic as evidenced by the remarkable success that has attended our efforts in supplying our members with their requirements in the way of bands and labels and other forms of special packing. Of course, it goes without saying that as yet we have not been enabled to stock a complete line of all jobbers special packing, due to the fact that the jobbers have not shown as willing a spirit to assist in this work as would have naturally been supposed and which was reasonably expected of them by the manufacturers through our Association. The results we have been able to give our members in the way of economy have not been as marked as would have been possible had the jobbers extended a more hearty spirit of cooperation At the same time, we have made progress and have established a foundation for a large business that will yield marked economy of both time and expense in enabling our members to supply jobbers special packing without the many annoyances and high expense that has previously prevailed

The Credit Bureau and Collection Departments have increased in importance during the past year.

Even in the face of business depression and demoralization resulting from the European War, we have been enabled to add a large number of both active and associate members to our ranks during the past year. In addition to 20 renewals, 30 active members and 32 associate members have been added to our membership. We have lost possibly 15 members during the year, some by reason of liquidation or mergers, while others have resigned.

Sub-Association work, strictly speaking, has not shown progress in the past year, but we are pleased to report that the bi-monthly meetings of the Pennsylvania underwear manufacturers are steadily increasing in importance, showing an increased attendance, greater interest and we hope beneficial results. The monthly meetings of the Philadelphia Hosiery Manufacturers, which are always preceded by a dinner, have also increased in importance with corresponding beneficial results.

The Philadelphia Hosiery Manufacturers have

successfully inaugurated a Labor Clearing House which is now under satisfactory operation. It is believed that this phase of Association work may be broadened to the extent of serving hosiery manufacturers in all sections of the country and that eventually the underwear, sweater and other branches of the knitting industry may be served in similar ways.

### REPORT OF DIRECTORS

Following is an abstract of principal features:—The Association through The Knit Goods Bulletin, committees and activities of members, took an advanced position during the year in combatting proposed legislation inimical to the interests of industry and labor, and in urging the enactment of laws tending toward the betterment of conditions. Every appeal from individual or organized manufacturers received prompt attention, and the desires expressed in resolutions adopted at Sectional Meetings were carried out to the letter. Committees visited Harrisburg in antagonisms to the Child Labor Bill, which, we regret, was passed finally and awaits the Governor's signature. We congratulate ourselves, however, in having contributed to procuring in the Pennsylvania House of Representatives a substantial vote by which the Bill for the Repeal of the Full Crew Law was passed.

You are all familiar with the setback given to the knit goods industry by the changed tariff schedules and the tribulations which followed the outbreak of the European War. It is significant of the sterner stuff of which knit goods manufacturers are made that the bore their trials in patience, survived the unusual shock, and, notwithstanding adverse legislation are cheerily reporting progress.

Believing in cooperation as essential to the success of industry, the Association was ably represented at the Annual Meeting of the Chamber of Commerce of the United States in the early part of the year by P. C. Withers, who has just been further honored by you in his election to the Presidency of the Association.

Paul F. Vogel, President and Manager of the Belleville Hosiery Mills, Belleville, Ill., represented the Association at the National Foreign Trade Convention in St. Louis in January. So impressed was Mr. Vogel with the possibilities of developing a greater export trade, as shown in the Convention, that he suggests that your directors provide for an export department of the Association.

It is the aim of your officers to make the Knit Goods Bulletin in every sense a publication well worthy the dignity and importance of the knitting interests. To this end, economic as well as direct trade topics will be discussed editorially and it is purposed to present each month the news of the trade as gathered among manufacturers, agents, commission houses and jobbers.

Considerable progress has been made in promoting the net weight policy in the sales and purchases of yarns, by which the actual buyer is spared the cost of wrapping at the price of yarn. Many manufacturers, however, have yet to realize the importance of net weight buying.

Another matter of supreme importance to buyers of yarn is that of conditioning. It therefore is with pleasure that we can report preparations well under way for establishing in Philadelphia a conditioning and testing house, to be conducted in strict harmony with the regulations of the United States Conditioning and Testing Company of New York. The project is in the hands of a capable committee, and it is confidently expected that standard tests of yarn will be provided in Philadelphia during the present year.

On Wednesday evening the exhibition hall was closed and all thoughts of business were banished from the minds of the members, the exhibitors and their associates, who got together at the Parkway Building where a buffet lunch was served. Then they adjourned to the Odd Fellows' Hall, each man being presented at the door with cigars, a pipe and tobacco, and a souvenir match holder, and from eight until eleven were entertained by a host of artists picked for their special abilities to please just such a body of men.

One of the special features was the act by Messrs. Leippe and Withers. Mr. Withers was called to the stage and requested Mr. Leippe to assist him in his "song and dance." After a few wel' chosen remarks on the progress and success attained by the Association during the three years of Mr. Leippe's leadership, Mr. Withers presented him with a beautiful diamond ring as a token of appreciation for his untiring work. Mr. Leippe in responding modestly refused to accept the praise for himself alone and shared it with those who have been working with him, and predicted that just as much success would be won under the new president and pledged his own personal aid in any way possible.

Then more acts and a happy crowd of men left the hall in the best of humor.

### THE VALUE OF PERMUTIZED WATER FOR PROCESSING YARNS

BY A. R. CALVO

A very well known knit goods manufacturer said to me one day that after spending a great deal of money in improvements to his mechanical equipment, and being sure that his experienced help was as expert as he could get hold of, he had felt reasonably sure that the quality of his product was going to be even better than ever.

But it seems that he was doomed to disappointment.

The same complaints, small in number but annoyingly regular in their recurrence, continued to come in from his customers. Every once in a while he was disgusted to learn from one of his salesmen that an order had gone to some competitor because a buyer hadn't liked the feel of some of the last lot, or kicked because colors weren't uniform or shades accurately matched.

He told me he stormed around his place, scolding his dyers and his finishers and not forgetting to bedevil his dyestuff people. But there wasn't any betterment, and he couldn't imagine just where the trouble lay. He didn't lay it to the water because he was located in a town having a water supply considered a nice soft one—and by comparison with many others it really was fairly soft—just about like Philadelphia's from the Delaware River.

Finally, every other source of trouble having been eliminated, he decided it must be the water which was making the trouble. Another manufacturer in his own line helped him come to this decision by telling him how Permutized water had ended a lot of difficulties at his mill, and so our friend shortly after became one of the rapidly increasing number of textile manufacturers using Permutized water.

What was the result?

From the very first day that Permutized water was used, the yarns were noticeably softer than they had ever been, colors were clearer and more brilliant, the dyeing was always uniform and it was always possible to match the most delicate shades accurately.

The reason for all this was that previously his so-called soft water still had enough lime and enough magnesia to react with the soap in his boil off and in his washers, and with his dyes in the dye bath. Lime soap specks roughened his yarns and interfered with even dyeing, and you can believe that it was no consolation to him that some other manufacturer somewhere had more troubles than he did.

When he began to use Permutized water he had a water from which every bit of lime and magnesia had been removed, and which furthermore hadn't a trace of alkali—in other words, a water the equal of rain water for textile purposes.

Before we compare more closely natural waters with Permutized water, let me tell you briefly what is Permutit, which produces Permutized water.

Permitit is the name given by a distinguished scientist of Berlin, Dr. Robert Gans, to an artificial sand which he was the first to make.

Permutit is really an artificial zeolite, which is produced by fusing at very high temperatures in a furnace, felspar, clay, pearl ash and soda in definite proportions. The first product is a greenish glass, which is first crushed and then washed with water.

The finished product is a granular substance like coarse sand which chemically is a sodium aluminate silicate.

Its value for water softening consists, first, in that the sodium which it contains is exchangeable for any lime or magnesia which may be present in a water filtered through it, and second, that often a given quantity of Permutit has been exhausted of its sodium by the filtration through it of a hard water, the Permutit can be easily and cheaply restored to its original state, regenerated we call it, simply by allowing a solution of ordinary common salt to remain in contact with it for a number of hours.

In actual textile practice, the filters containing the Permutit are designed of sufficient capacity to deliver one working day's supply. At night the salt solution is run into the filter, and when it is washed out in the morning, taking with it the previous day's accumulation of lime and magnesia, the filter is again ready to deliver the normal amount of perfectly softened water.

So much for the production of Permutized water.

The value of it for processing yarns, or for dyeing or washing knit goods in the piece, consists in that while it materially cuts down the cost of production, it markedly improves the quality of the product.

In other words, it turns out more readily marketable goods at lower cost.

Hard waters eat up money in the textile mill amazingly fast.

One of the principal reasons is the soap destroying property of any water containing lime or magnesia—the more of these, the more soap destroyed, but always enough to hurt with the softest natural waters. The actual amount is 1 1/2 pounds of soap for each German degree of hardness for each 1000 gallons of water that is used for suds or soaping. For Delaware River water the perfectly easily avoidable loss is six pounds per 1000 gallons. Down in one of the Southern States there is a knitting mill using a city water which destroys 28 1/2 pounds of soap per 1000 gallons.

Eliminate all the hardness, as Permutit does, and you save a lot of money.

But this money loss is not the worst thing about the destroyed soap—the lime soap as the dyers call it. This lime soap is greasy and sticky—more sticky than anything I know of—once it fastens on the yarn, no amount of washing—because it is also insoluble—can ever wash it off. In the hot presses these lime soap specks get flattened out into disagreeable grease spots which decompose and smell bad and can even rot fine fibers. In the dye bath the soap spots prevent the dye from reaching the fiber, and this of course, causes uneven, splotchy dyeing.

Wool scouring requires a great deal of soap. Wool scoured in a water containing even only a small amount of lime or magnesia can never be as soft to the feel as a wool scoured in Permutized water. Naturally, yarns spun from the latter wool will be, grade for grade, more pliable and softer to the feel. The absence of soap spots permit finer numbers to be spun from the same wool and to be worked on the knitting machines without breaking in the needles.

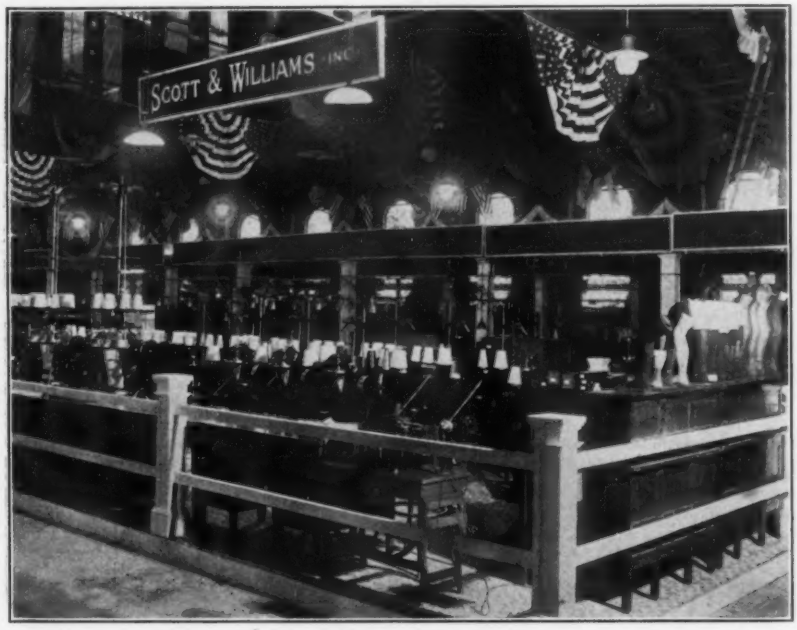
Wool yarns in the dye bath respond more accurately to the colors with Permutized water because the lime and magnesia salts in the hard water react with certain dyes, causing a precipitation of the color in a tarry mass that sticks to the yarn with disastrous effects to the tint desired.

(Continued on page 268)

# Philadelphia Knitting Machinery Exhibition

The experience of past years has familiarized the exhibitors with their needs and requirements so that when the exhibition in the Armory Building in Philadelphia opened on Monday morning, May 3rd, almost all the exhibits were in place, and by afternoon the show was complete. The decorations were attractive and the same color scheme was carried out, green and white. The majority of the exhibitors occupied the same spaces as in former years. A few absentees were noted, but their places were filled from a waiting list, for this exhibition has become such an annual event that early application for space is necessary to insure representation.

To describe in detail all the exhibits would far exceed the limits of this issue, but we present and illustrate the principal features of each. The pictures give a good idea of its extent and general character.




**Scott & Williams, Inc.**

Scott & Williams, Inc., 88 Pearl St., Boston, Mass., showed a complete exhibit of their system of hosiery machines of various types and gauges. This company has placed upon the market a most comprehensive system of machines, different models of which are designated by letters. The simplest type of machine, known as Model B, is designed to make ladies' hose, men's half hose or misses' hose in the ordinary old style way, by the transfer of a ribbed top in the case of half-hose or misses' hose or by the sewing of the welt or hem in the case of the ladies' hose. The most comprehensive machines, Models G and F, produce half hose, misses' hose and ladies' hose complete on the one machine, without the use of a ribber or sewing machine, each stocking being dropped from the machine when finished. It is thus for the first time possible to make on one machine of one standard diameter, women's, children's and infant's stockings. Of the other types, Model O is designed for making ladies' hose of the ordinary sewed welt type. It, however, starts each stocking on the naked needles by a selvage structure with no waste, and also presses off and drops the articles from the machine. At appropriate places it inserts a course of stitches of peculiar formation that positively prevents ravelling or drop stitches if the top of the stocking is torn or otherwise injured by the garter. Model Q is the same as Model O except that it lacks the mechanism for making the anti-ravelling course, but otherwise it effects all the economies of the

Model O machine. These machines are so designed that at comparatively slight expense any one model may be changed to any other model, so that the purchaser of any one type of machine is not confined to that type, but is in a position to have them altered to other types whenever market conditions make such a course advisable. These machines may be fitted with attachments for making split sole stockings, mock seam or crowfoot stockings and stockings with tipped heels and toes. They may also be fitted with an attachment which automatically cuts out the float of the high splicing thread effecting a saving of the waste which this type of stocking ordinarily entails. They also exhibited some of the latest types of their well known underwear machines, among less application which has become so popular. Another item of interest is the machine for making infants' half hose tops with fancy figured designs. The small border or taps machine is fitted with a sinker device that decidedly improves the product. The machines on display and in operation are described as follows: Wildman circular rib automatic body machine 36 inches diameter, 2,712 needles, 24 feeds, equipped with inserted wall cylinder and dial and new Wildman stop motion. Wildman circular rib plain body machine 20 inches diameter, 1,752 needles, 8 feeds, Wildman stop motion. Wildman circular rib stationary cylinder type body machine 19 inches diameter, 1,876 needles (16 cut), 12 feeds, equipped with inserted wall cylinder and dial and new Wildman stop mo-

**Wildman Manufacturing Co.**

which is the machine for making ribbed fleeced garments. These garments have been in great demand for many years, but on account of patent restrictions on the garments the machines have never before been sold in the open market. These restrictions have now been removed and a large increase in the demand is anticipated.

The Wildman Mfg. Co., Norristown, Pa., exhibited in the same space as in former years their various makes of body machines. They also showed an absolutely new departure in stop motions combining simplicity and sensitiveness that responds with seeming intelligence to requirements that have hitherto been unprovided for. An ingenious system of cylinder and dial dogs for revolving cylinder machines, whereby the dogs release serially several times in each revolution and provides all the advantages of the Wildman dogtion. Body machine showing the action of the vibrating dogs. Wildman ribber, 3 1/2 inches, 220 needles, making half hose tops with French welt, equipped with dogless attachment, two speed drive and Wildman revolving stop motion. Wildman ribber, 3 1/4 inches, 156 needles, making infants' half hose tops with fancy stripes, figured and checked designs, equipped with dogless and two speed drive and Wildman 4 and revolving stop motion. Wildman border machine, 1 1/8 inches diameter, 40 needles for borders, button stays, etc., equipped with sinker top and Wildman 2 end stationary stop motion.

The Hemphill Mfg. Co., Pawtucket, in booth No. 45, which is celebrating their 8th anniversary, attracted much interest by their five "Banner" knitting machines. Their 280 needle, 3 1/2 inch diameter, for extra fine ladies' hose, was one of

the features of the exhibition. Their other machines include a 220 needle, 3 3/4 inch diameter, with new and improved no ravel stop; 120 needle, 2 1/2 inch diameter, for tipping and diameter, for wool goods was especially interesting, as a number of them at present are being used in making socks for the European armies. A 160 needle, 3 3/4 inch diameter, used with cheap

**Hemphill Mfg. Co.**

striping infant's hose; 220 needle, 3 1/2 inch needle, 3 3/4 inch diameter, split foot, latest diameter, for plated work on men's half hose; 176 type. They were represented by John Lawson, carded yarn for men's half hose. A 220 needle, 3 3/4 inch diameter, for mercerized yarns, ladies' goods garter top, double sole, high spliced ankle. They were represented by Messrs. Morningstar,

**Jenckes Knitting Machine Co.**

Jean Gunning, Albert Landry, Joe Seeley and Morris Frost.

Jenckes Knitting Machine Co., Pawtucket, R. I., exhibited three machines: A 72 needle, 4 1/2 inch R. S. Beavers, R. G. Jenckes and J. E. Lent; machines were operated by Miss Elsie Manger.

S. A. Salvage Co., 463 Broome St., New York, sole agents for Akroyd & Grandage Co., Ltd.,

Bradford, England, showed a line of yarns produced for the knitting trade. C. A. McCann was in attendance at the exhibition.

Aberfoyle Mfg. Co,

J. A. Firsching

The Aberfoyle Manufacturing Co., of Chester, Pa., with a Philadelphia office in the Morris Bldg., fitted up one of the largest booths in the Exhibition Hall for the reception and accommodation of their many friends and customers. The company had in attendance their entire staff of salesmen, all of whom are well known to the trade, consisting of Messrs. Golden, Rowcroft, Switzer and Thomas. Mr. Gilliland and Mr. Galey were also

present at various times during the week. The company, which is one of the largest mercerizing and dyeing concerns in the country, demonstrated to their callers the advantages of using their yarns for handling cloth up to 40 inches wide which it cuts, folds and rolls up in one operation, or cuts and rolls without folding the edges. He also exhibited a rotary cuff cutting machine with a rotary

Tompkins Bros. Co.

Merrow Machine Co.

which are not only mercerized in the most skilful manner but dyed absolutely fast to sun and washing.

J. A. Firsching, Utica, N. Y., exhibited his 1912 cloth cutting, folding and winding machine, a machine which is already well known to the trade feed, rotary crushing cutter fitted with ball bearings and eliminating the use of oil, its speed being unlimited; an electrically heated neck marking machine, which does away with the use of lead pencils; pipe loading machine for turning the cloth and pulling it on the pipe in one operation; a collarette

cutting and winding machine with a rotary crushing cutter and transmitter attached, gear driven from the cutter, which takes care of all kinds of collarettes. Button and button-hole spacers were also shown, being especially designed to eliminate markings and yet make the spaces an equal distance apart. Mr. Firsching, together with expert demonstrators, were in charge of the exhibit, which was a most interesting one to those visiting it.

Tompkins Bros. Co., of Troy, N. Y., exhibited both their circular spring needle knitting machin-

**Hungerford & Terry, Inc.**

ery and one of their new circular latch needle sweater machines, their spring needle machine, consisting of a two-cylinder operating independently and running on two representative gauges of underwear. One cylinder was in operation on 40-gauge, which is the finest gauge in commercial operation at the present time. This is by no means the finest gauge which can be manufactured, as they build machines as fine as 50-gauge, which means a trifle over 33 needles per inch. The other machine was operating on fleece-lined underwear. A sweater machine was also exhibited running on various weights of sweaters which come within its range, the machine being changed during the exhibit to operate on different cuts without changing the plates and cylinders. They also exhibited a complete line of fabrics which can be knit on the various gauges and types of machines which they manufacture.

The Merrow Machine Company, Hartford, Conn., manufacturers of overedging, overseaming and shell stitch machines, who have displayed at the Exhibition since its inauguration, this year exhibited their style 60UD machine for toe-closing and 60S machine for welting the tops of ladies' stockings. Many other of their machines besides the above-mentioned are in demand for an extensive variety of other finishes, several of which were shown in operation. E. H. Allen, of their Philadelphia office, had full charge of the exhibition, and with his assistants demonstrated the machines to interested users. Personal attention is given constantly to the refinement and improvement of all models for finishing knit underwear, sweaters and other garments and furnishings. Already well known is their style 60D machine, with its many

**The Rose Label Machine Co.**

variations for finishing knit goods; styles 60AD and 60ADSS machines for finishing sweaters, and particularly the very heavy ones used so much at the present time.

Hungerford & Terry, Inc., the well-known filter manufacturers located in the Penna. Bldg., 15th and Chestnut Sts., Philadelphia, whose appliances are so well known where pure water is essential in textile mills, their apparatus having been installed in most of the largest textile concerns in the country, exhibited one of their pressure filters. Visitors to this exhibit will no doubt have noticed

that their filters and water softeners have been designed and developed with a view of meeting the exacting requirements of the textile trade. Messrs. Hungerford and Terry explained to their visitors the advantages of their machines that have been so uniformly successful in alleviating the troubles of many who have had difficulty in their dyeing, bleaching and finishing, due to water contamination in their localities.

The Rose Label Machine Company, of Grand Rapids, Mich., exhibited their tab and label sewing machine. This machine is used for sewing on patches to reinforce the button and buttonholes on union suits, and is also used for sewing on labels.

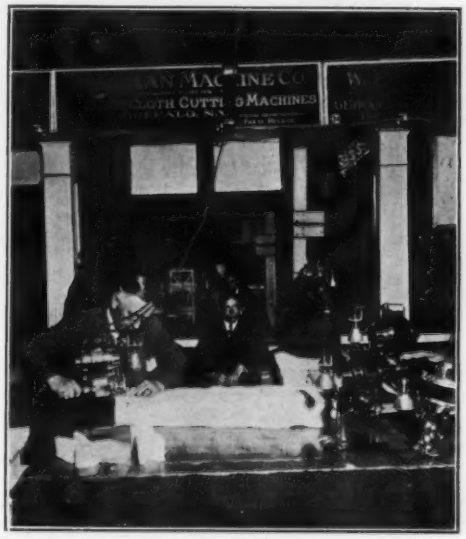
**J. L. Shoemaker & Co.**

As this machine automatically sews around the four sides, trims the thread and feeds in its own labels, the production is limited to the speed of the operator in handling the garments into the machine. Striking an average in twenty mills it was found that one girl on the Rose label machine did as much as three girls could do the old way, where the operator had to turn their garment in order to sew on the label. And in these twenty mills the managers without exception claimed the class of work far superior to the old expensive way of doing it. The class of work and speed of machine was seen by closely scrutinizing them in operation at the exhibit and Arthur Rosenthal, the president of the company, who had charge of their exhibit, was actively employed in explaining how these results could be obtained on a machine of such simple construction.

Paxton and O'Neill, 537-39-41 N. 3rd St., Philadelphia, one of the old and prominent builders of hosiery knitting machinery, exhibited for the first time their new revolving needle cylinder knitting machine, equipped with a "5-finger yarn changer."

**Paxton & O'Neil**

The machine has many new features of interest to knitters which it is impossible to give in detail here. These machines, two of them being exhibited, both in operation, one making half hose and the other ladies' hose, continue to make a



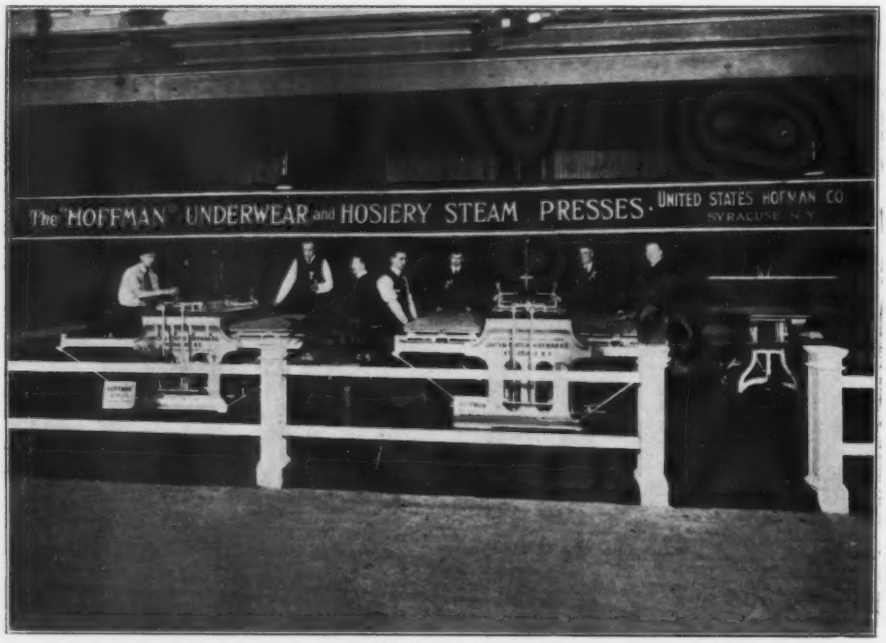
**Eastman Machine Co.**

fabric which is conceded by all its users as one of the finest latch needle fabrics ever made. Among other features the machine contains is possibly the easiest transfer yet put on a knitting ma-

chine. The exhibit this year, as usual, was in charge of Messrs. Price & Jackson, who were assisted by able demonstrators.

The New Jersey textile wire stitcher, exhibited by J. L. Shoemaker & Co., 6th and Ludlow Sts., Philadelphia, is the outgrowth of the New Jersey wire stitcher, which has for many years been one of the leading stitchers for binding and stitching pamphlets. The New Jersey textile machine is constructed for attaching rider tickets, labels, etc., to hosiery and other textile fabrics, the points of its staples being so sharpened that the most delicate fabrics cannot be torn, the staples being so driven that they can be clinched on either the inside or outside of the stocking, it being possible to attach the label to the inside of a single stocking or through the pair as desired. The wire used is very thin and the esitmated cost of a thousand staples is less than one cent. The ordinary speed of the machine is from 150 to 160 staples per minute, each staple representing a pair of stockings and is only limited by the speed of the operator, its output being 300 to 600 dozen per day, although it has a record of 1,000 dozen per day, the machine in this case being operated by two young boys. A finger guard has been added to the machine which makes it impossible for an operator to be hurt in any way, no matter how fast the machine is run.

To demonstrate to the knitting trade that the day of hand cutting is past and that much better and more work can be done with the same or less operators, less labor and skill, Fred Hellege and Arthur A. Johnson, in charge of the exhibit of the Eastman Machine Co., of Buffalo, N. Y., showed a complete line of Eastman cutters consisting of seven different models, each suitable for different classes of work and for any kind of electric current, either direct or alternating. They showed their visitors how knitted goods could be handled and cut in the cheapest way. They also demonstrated what the Eastman cutter has done for the cutting room, making more and better work, lowering costs by increasing the efficiency of the operators, which has made the Eastman cutter a necessity in the cutting room of knitting mills where a machine of this kind can be used.




**The U. S. Hoffman Co.**

The U. S. Hoffman Co., Syracuse, N. Y., in their large and attractive space, welcomed many friends who availed themselves of the hospitality extended them and made it their headquarters. The two underwear presses, Models FFF and FF, and the hosiery press, Model L, were displayed in full operation and, as usual, particular interest was shown in the FFF, which has been the standard knit goods press of this company for many years. Numerous manufacturers, who had responded to the invitation to bring in samples, were much pleased with the results shown. The Model L hosiery press was kept busy pressing hosiery samples and although on the market only a few years has been taken up by hosiery manufacturers, because of its high quality work, combined with large production and ease of operation. The company was represented by E. C.

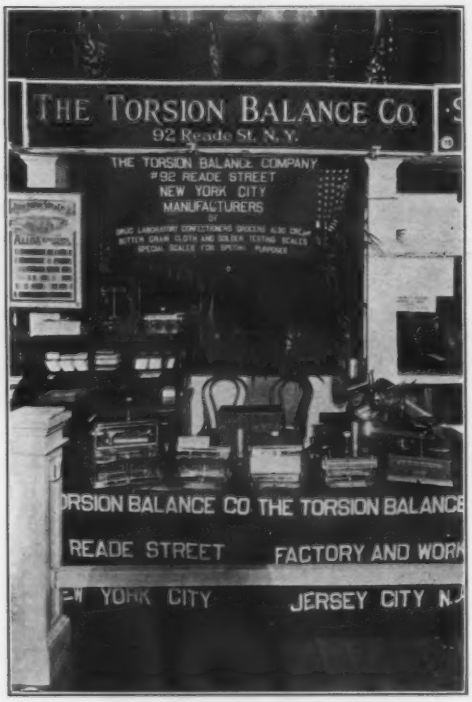
Moore, secretary, L. J. Rieth, J. E. Scarborough, T. R. Hudson, C. J. Ryan and P. E. Geldhof.

**Union Special Machine Co.**

This year, as in previous years, the Union Special Machine Company's exhibit was one of the important features. Among the machines of special interest which were exhibited for the first time were the Tandem Interlock machine, which makes an exceptionally attractive stitch. The seam forms a perfect union of abutted edges, no heavier than a single thickness of material. This machine is used to finish the complete garment, is of high speed construction and does not necessitate the use of any special thread. An improved Dewees trimmer, built upon entirely new bed, being so arranged as regards the toggles so as to prevent their separating one from the other, no matter how heavy the material may be that they have to sever, which correspondingly reduces the

**Paramount Metal Form Drying Co.**

pressure of one toggle against the other, result being greater durability and much greater speed than the former Dewees trimming mechanism. A combination-stitch facing machine, featuring three needles, two being employed to effect an over seaming or cross stitch, while the other is spaced and makes a straight-away stitch. The object of this machine is to stitch a facing to the front of the garment and finish off the raw edge in one operation and still have an ornamental stitch to cover the raw edge of the knit fabric. One edge only of the facing strip has to be folded as the raw edge upon the opposite side is covered by the cross stitch. It is also possible if desired to introduce a lace edging which is stitched simultaneously with the facing. In addition to the foregoing machines, they also exhibited other machines more or less generally known and used in both the hosiery and underwear mills, embodying the latest improvements other than those that were formerly sold. In this latter class were machines




**The Torsion Balance Co.**

for sewing lace to the edge of garments, for edge stitching, for various styles of seaming, for accomplishing the scalloped edge finish on ladies' vests, inserting the ribbon simultaneously with the making of the trimming, a four needle machine for shirt facings, using two threads, needles being abreast and a large variety of machines with which underwear manufacturers in general are very familiar. This attractive exhibit was under the auspices of Philadelphia office, R. E. Thompson, Jr., manager, being assisted by the following salesmen of his staff: J. McNelly, W. F. Tosney, George Ide, G. C. Cooper, E. E. Gratsch, J. De Nure and J. Linn. The erection and installation of the machines comprising this exhibit was ably accomplished by J. Linn. A large force of experts was in attendance from various offices throughout the country, including Rube Thompson, who devoted the major portion of his time to the practical dem-

**Nonotuck Silk Co.**

onstration of the Tandem interlock machine. Another new model which was exhibited for the first time, the Figure Eight Machine, Style 4700-B was under the supervision of R. R. Hughes, of New York office. The Tandem interlock machine proved to be one of the main attractions of the exhibit and miniature garments were seamed on it and given out as souvenirs to many interested visitors. Among visiting representatives of Union Specal Machine Co. were Chester McNeil, vice-president; T. Yoshidzumi, manager of Union Special offices in Japan, who was honored at the banquet by having an American girl sing to him the now popular song, "I want to go to Tokio." Lansing Onderdonk, General Eastern Manager and S. R. McNeil, advertising manager. From a standpoint of interest the Union Special exhibit was one of the attractions at the Convention and a great success.

The Paramount Metal Form Drying Co., Beaver Dam, Wis., exhibited in their booth a table equipped with their complete system of metal forms which interested every hosiery manufacturer desirous of being up-to-date and modern in his

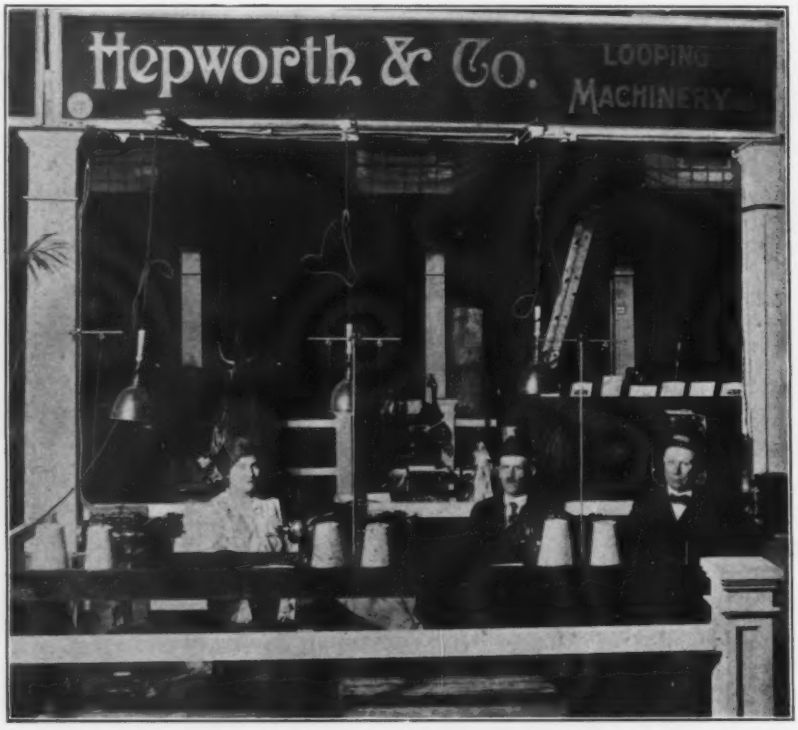
methods. The builders state that many mills have already been equipped, and interested visitors had demonstrated to them the efficiency and economy of this method of drying hosiery. This form consists of a hollow metal shape of the same circumference and outline as the usual wooden board, the sides being convex instead of flat, the edges meeting at an acute angle; exhaust steam being introduced to the interior of the form, quickly heating it to the temperature required for rapid and uniform drying, the steam being kept uniform at all times and points by means of safety and pressure regulating valves. The whole system of forms is mounted on a table inclined away from the operator at an angle best adapted for the most rapid work. The exhibit being new was one of the most interesting ones at the exhibition and attracted considerable attention.

**Grand Rapids Textile Machinery Co.**

The Torsion Balance Company, 92 Reade St., New York, exhibited a full line of textile scales, one type giving, without calculation, the count of cotton, worsted and woolen yarns; another type being used for determining the number of yards to the pound of cotton cloth, regardless of width, and for woolen cloth the actual weight in ounces or grammes for any width goods. For general use, they exhibited their style No. 5020 with a graduated beam from 1-10 to 10 grains. The No. 5010 cotton yarn numbering scale is being used in connection with the Freese conditioning oven, in use by the U. S. Government, by which they determine the duty on yarns under the "bonedry" system; also the Clark Thread Co., of Newark, N. J., and the J. P. Coats, Co., Ltd., Paisley, Scotland. The exhibit was in charge of G. L. Hayes, connected with their selling force, and W. Clark Symington, president of the company, who also spent several days at the show.

The Grand Rapids Textile Machinery Co., Grand Rapids, Mich., exhibited their improved folding and cutting machine, a machine with a great many improvements over the old style machine. It was more simple and stronger than before, being designed for use in cutting rooms for folding and piling the cloth into uniform lengths ready for the cutter. They also exhibited their new pressing machine, which was shown for the first time. This pressing machine is automatic in every way. The garments are placed on wire forms, which give them uniform size and width, straightens the wales, and brings all seams to the sides. The use of these wire forms, however, is optional, as the garments can be placed on the machine in the regular way. The garments are put on a conveyor belt, which takes them under the hot plate, which is steam heated. This operation takes place every fifteen seconds, each time putting a new set of garments under the plate, and conveying the pressed graments to the rear, where they are taken off and folded or boxed. The machine has a pressing capacity of 48 by 60 inches, which will press three men's union suits spread out flat. The Grand Rapids Textile Machinery Company also manufacture the Shields No. 1 folding machine, which folds the cloth into bales instead of rolls, and the Shields turning and loading machine, which turns and leads the fabric on a pipe in one operation.

John W. Hepworth & Co., Lehigh Ave. and Mascher St., Philadelphia, Pa., exhibited their well-known single stitch looper with their patented two-thread elastic stitch attachment. Also their new model two-thread elastic stitch looper. Hepworth & Co. are the oldest manufacturers of looping machines in this country, the single stitch looper having been placed on the market over thirty years ago, and it is but a few months since they received a looper back in order to make a finer gauge, that had been in continuous use for thirty years and was running good as when it was taken off the bench to have the gauge changed. One of the features of their two-thread looper is that it makes a flat seam. The seam being flat when it leaves the machine, and when dyed and boarded is almost invisible. Mr. Hepworth who was in attendance explained to his callers the easy adjustment of this two-thread looper and also the attachment. In their machines the hook does not have to come in contact with the sewing needle in order to pick up the stitch. The large opening that they form for the hook to enter makes it so that if the hook is within a 1/32nd of an inch of the needle it will pick up the stitch.




John W. Hepworth & Co.

C. E. Hardenbrook Co., 40 N. 4th St., exhibited the latest model Union flexible stitch button sewing machine, for which they are selling agents in this territory. The machine can be operated on all classes of fabrics, sewing on to the garments all sizes and shapes of flat buttons. The exhibit was in charge of H. C. Klank and Chas. R. Reitzes.

John M. Zurn of the O. F. Zurn Co., Broad St. and Lehigh Ave., Philadelphia, presided at the exhibit of this company, which was a most extensive one, consisting of various softeners for fast black hosiery; glycerine softeners for dyers using the sulphur process; magic hosiery oil to be used in conjunction with glycerine softener, eliminating the use of olive oil; Alpine softener, lusterine softener and silk thread softener. Particular attention was also called to their new product, glyco-developer and Crown scroop finish.

E. B. Gorman, representing the Nonotuck Silk Co., being their mill representative with offices at 1027 Arch St., Philadelphia, showed their various lines of silks dyed and undyed in hanks, spools, cones and cops in singles, doubles, three, four and five ply spun silk yarns, making a specialty of their luster spun silks for the hosiery trade; embroidery silks and hosiery tacking silks, all of which they can deliver on short notice, large quantities always being in stock.

The exhibit of the Philadelphia Textile Machinery Co., in space No. 1, attracted great attention on account of the new Proctor automatic boarding, drying and stripping machine for hosiery, shown for the first time. It is a radical improvement over old methods, making it possible for one man to board twice as many stockings as formerly. There is no wear or tear on the boards and seconds and damaged goods are eliminated. The machine takes the stockings to the dryer, dries them, takes them out of the dryer when dry, removes the stockings from the boards, piles and counts them in dozens, and then brings the empty board back to the man to load up again. The

The Wright steady dial looper, displayed by the Southern Textile Machinery Co., Paducah, Ky., was in charge of their president, G. A. Flowmay, who showed two machines, a 22-point and a 24-point looper. These machines operate with a steady dial movement, making an elastic stitch and flat seam. They claim the steady dial movement increases production, cuts down seconds and eliminates to a very large extent the problem of training looper hands. The Wright steady dial looper, being of comparatively few parts, the up-keep is of small consideration, and being an American-made looper, the parts can always be promptly obtained..

**The Philadelphia Textile Machinery Co.**

various members of the staff were kept busy showing the machine to manufacturers, who took a keen interest in it. The machine is illustrated and described at further length in the New Machinery and Processes Department of this issue.

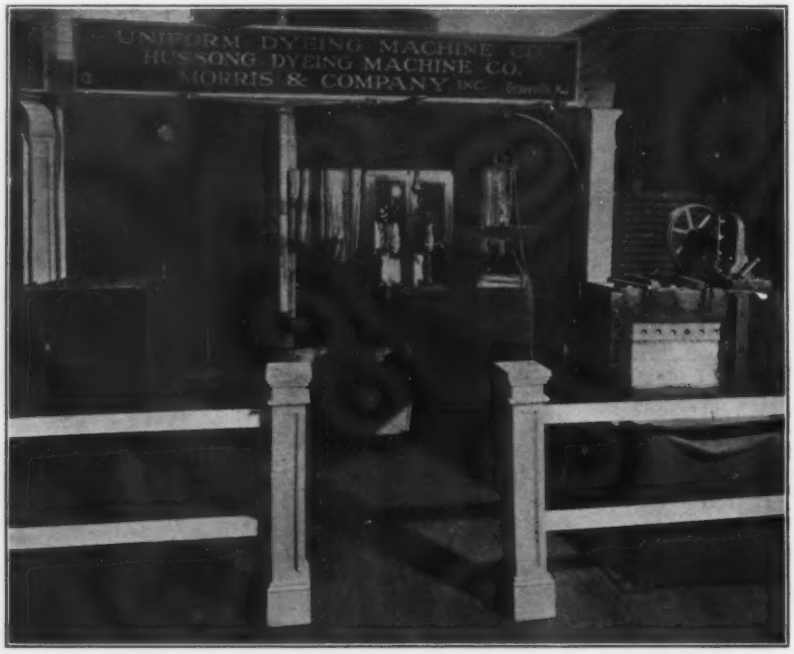
The Sauquoit Spinning Co., spinners of yarns for the knitting trade at Capron, N. Y., displayed the various grades of yarns manufactured by them, with their general manager, Wm. H. Merriman, in attendance, together with Samuel C. Hoffman, in charge of their Philadelphia office, and H. B. Robie of their New York office on hand.

Samples of hosiery and yarns dyed in various shades, making a specialty of "Hagars" intense black, composed the exhibit of the Nicetown Dye Works, who also showed a model of their large and extensive plant.

The Manufacturers' Supplies Co., Juniper and Cherry Sts., Philadelphia, in addition to showing the standard brands of latch needles manufactured by the Excelsior Needle Co., of Torrington, Conn., for which they are the Philadelphia representatives, also showed other and various lines of supplies for knitting mills for which they are the distributors in this locality.

George C. Decker, eastern distributor of the Bradley Stencil Machine Co., with offices at 15 South Third St., Philadelphia, showed various models of their machines. They also demonstrated the non-leaking fountain stencil brush, stencil filing cabinets, indelible waterproof stencil and marking ink in all colors and other appliances for use in the shipping rooms of mills.

The Uniform Dyeing Machine Co., Groveville, N. J., exhibited their circular type of machine for bleaching and dyeing hosiery, bolts of knitted cloth warps, etc. One end of the machine was equipped with a transparency in order that those interested might study the action of the circulating liquid upon the stock. The object of this exhibit was to show that all the stock is exposed to the same flow of liquor and receives the same impregnation throughout. The Hussong dyeing machine, manufactured by the same company, was also exhibited. This was constructed in part of glass, affording the same opportunity for scrutiny and study as the Uniform machine. The Hussong machine was of the yarn dyeing type, and was




**Uniform Dyeing Machine Co.**

filled with skeins. It was most interesting to note the movement upward or downward of the mass as a whole with the reversing of the circulation. By this demonstration it was shown that the skeins do not intermingle or become entangled and further showed that by suspending the skeins at one end the count is not changed, and the gentle flow of the liquor explained how loftiness of the yarn is maintained. The method of lifting the batch and holding it in suspension, making it possible to partly treat one day and finish the next without loss of liquor, and how yarns can be treated in one machine and carried to and after treated in another machine, was also demonstrated.

Albert Ivins Croll, representing the Sharp Manufacturing Co., New Bedford, whose office is in the Mariner & Merchant Bldg., Philadelphia, exhibited the various lines of cotton yarn made by this concern.

The American Type Founders Co., of Boston, exhibited their new No. 11 Boston stitcher, operated by electricity, for stitching on tags with wire fasteners. The feature of this machine is its adaptability by a slight and almost instanteous change from an arm to a table, thus making it practical for either hosiery or flat work. Another feature is the speed of the machine, which they claim to be nearly twice as fast as any other. It cuts off staple to a point and turns point back into the stock, thus eliminating any possibility of the wire catching into the fabric. They also showed their foot and hand power stapling machine with pointed staple, which are both new. The exhibition was in charge of W. G. Chase.

The Acme Staple Co., Camden, N. J., showed their line of various types of stapling machines for use in commercial as well as manufacturing houses. The special feature of this display consisted of the Acme No. 30 hosiery stapling machine. This machine, which has been on the market for several years, has been considerably improved and is used for the purpose of attaching rider tickets to hosiery with wire staples. The machine is a very inexpensive one and easily operated, being fitted with a workholder for holding the hosiery in dozen lots, eliminating the mussing of the hosiery after it is finished and ready for boxing. The exhibit was in charge of John Gorman, representing the factory, as well as the C. E. Hardenbrook Co., 44 N. 4th St., Philadelphia, who are the selling agents for the machine in this territory.

"Twenty-five years ago the late Wilfred Wells made the stamping of hosiery and underwear a particular featu:. by making a better stamp and it has been a better stamp ever since." This is what Albert and Fred Wells of the Wells Stamp Co., 2642 N. 11th St., Philadelphia, explained to their hearers when they showed a line of stamps which were particularly fine as to style and workmanship. They also demonstrated a new ink for underwear and bleached goods as well as a perfect gold ink made to take the place of transfers.

Edwin A. Newton 310 N. 4th St., Philadelphia, dealer in second hand knitting machinery and appliances for knit goods manufacturers, exhibited various articles in the way of scales, cylinders, dials, etc.

**The R. G. Jennings Yarn Cleaning Machine Co.**

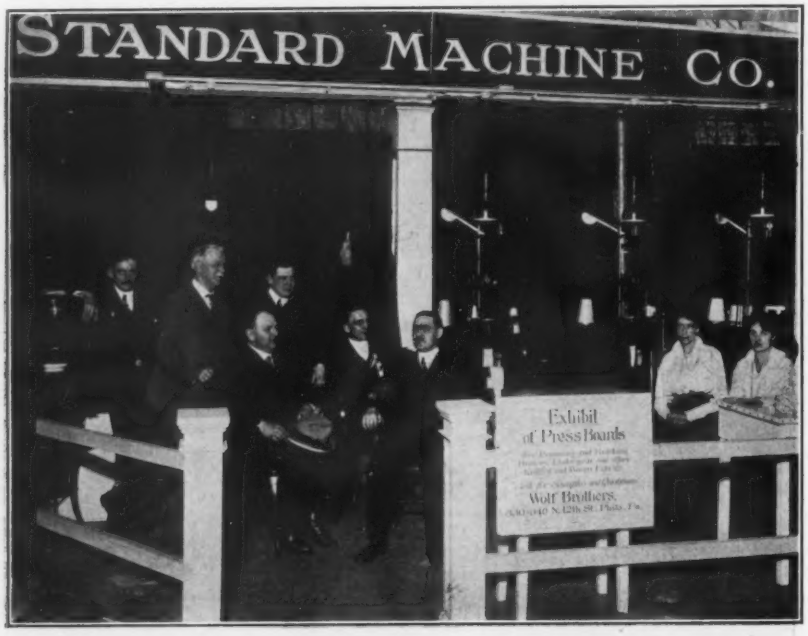
The R. G. Jennings Yarn Cleaning Machine Co., Elmira, N. Y., represented by Messrs. Halbert and Luters, exhibited their yarn cleaning device, adaptable for any winding machine, which removes the leaf, seeds, knots, heavy and fine ends, etc., and makes the carded yarn look as clear as combed yarn and greatly improves its knitting qualities and which attracted much attention. This machine as applied to a Payne winder has been illustrated in the Textile World Record.

Van Court Carwithen, selling agent for the Swift Spinning Mills and the Muscogee Manufacturing Co., always original in his ideas, fitted up his reservation with what he called a little display of cotton just to show how the stuff grows before being harvested and put into yarn. The exhibition was a very interesting one and attracted considerable attention. Mr. Carwithen also distributed, among his visitors, souvenirs in the shape of a cotton boll, right from the fields in the South, together with a fine leather match safe, which he would be glad to forward to any one, not having received same at the exhibition, by communicating with him at his office in the Mariner & Merchant Building, Philadelphia.

One of the new exhibitors at the show, Charles J. Webb & Co., 116 Chestnut St., Philadelphia, cotton yarn dealers, installed two knitting machines, one for hosiery and the other for underwear, on which they demonstrated the quality of the Necronset combed yarn, a Southern spun yarn of Eastern quality. The company's staff of salesmen were in attendance, including A. W. and E. L. Hicks, William B. O'Hara and R. B. Greenwood.

Scholler Bros. Co., 3301 Amber St., Philadelphia, showed a full line of soaps, softeners and specialties of special interest to the knitting trade. Among the specialties of interest shown by them was their uniform softener, a finish and softener in one, for sulphur, direct and developed black, which does away with all after treatments. The exhibit was in charge of F. C. and H. H. Scholler and George Pickering.

The Standard Machine Co., 12th and Callowhill Sts., Philadelphia, had on exhibition a 300 needle 3 3/4 inch cylinder knitting machine for making ladies' hose with garter top, double sole and high spliced ankle, this machine being the finest gauge latch needle machine on the market. They also exhibited their 150 needle 3 1/2 inch footing machine, together with a 220-needle half hose machine, making half hose with advanced toe, reinforced top and high spliced heel and double sole. These machines were all of their latest "G" type and they state are the only hosiery machines in existence running with a cam cylinder inside of the needle cylinder, thereby allowing the machine to run at a very high rate of speed, insuring a large production. The exhibit was in charge of Jacob Bauer, general manager, and Charles Schoneman, who has for many years been representing the company in Central Pennsylvania and the West, and who has now assumed charge of the Southern territory, succeeding the late Peter R. Rahm. The mechanical end of the exhibit was in charge of Louis Unruh, assisted by able demonstrators. Harry A. Houseman, president, together with his son, Harold, were also present at various times during the show.



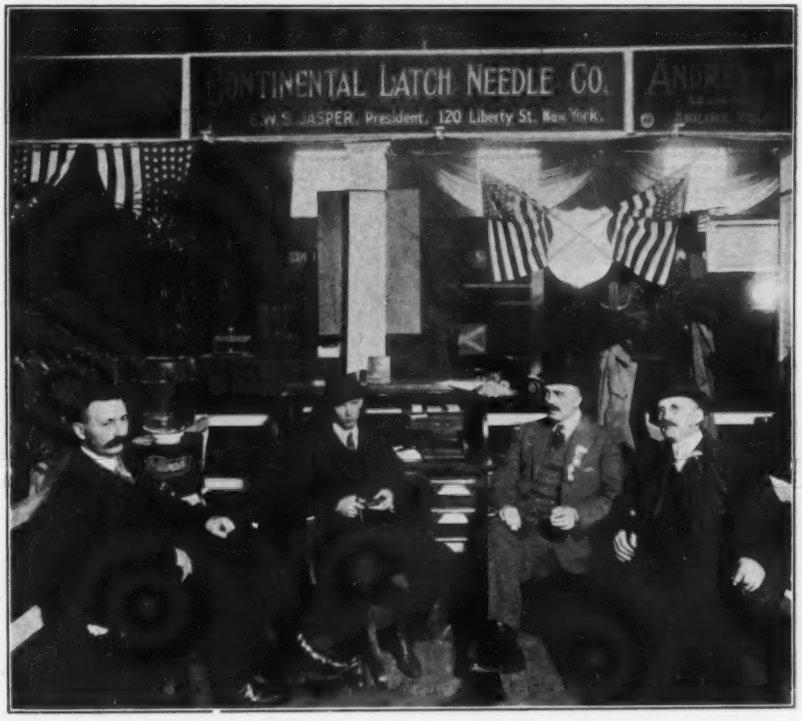

Standard Machine Co.

Alfred Wolstenhohne & Son Co., 24th and Allegheny Ave., Philadelphia, who will probably be remembered by the visitors as Wolstenhohne & Clarke, having some years ago incorporated their concern and changed their name as above, with Mr. Hicks, sales manager in charge, exhibited a line of French spun worsted yarns to which they have just added Bradford spun yarns, a plant for the latter having been installed within the past month or two.

The Continental Latch Needle Company, 120 Liberty St., New York City, were represented at the show by E. W. S. Jasper, president; Theodore Groz, treasurer and Ray C. Hunt, their Pennsylvania salesman. When asked about German needles, Mr. Jasper made the statement that in spite of the war they have been able to obtain good shipments of needles from Germany and are in a position to accept orders for immediate shipment from anyone wanting needles of the kind handled by them.

The Philadelphia Drying Machinery Company, 6721 Germantown Ave., Philadelphia, making a specialty of equipments for the knit goods trade, during the past year have developed and embodied many improved features in their "Hurricane" machinery and in their display, with practical men in attendance to demonstrate them, exhibited the latest in machinery for drying, dyeing, singeing and pressing hosiery. The features of this exhibition which, as usual, was a large one, included an automatic singeing machine known as the "Hagar" type. "Hurricane" fireproof dryers of steel and asbestos construction were also shown. Special attention was drawn to their simplicity of construction, design, strength and durability, enabling the machne to stand up under the most severe service required by the hosiery trade. Another feature which was brought before the at-

Philadelphia Drying Machine Co.




Continental Latch Needle Co.

tention of the visitors was the fact that in the dyeing and bleaching of hosiery a most important consideration is the cost of chemicals. Hurricane machinery for this purpose were shown to accomplish good results at less cost for dyestuffs and chemicals, a matter to be considered at this time. They also showed hot and cold plate presses of the hydraulic and power screw types for both hosiery and underwear, built to eliminate leaky press plates and the continually breaking off of elbows and having a capacity of from 25 to 100 tons pressure. Heating and ventilating apparatus, also fans of various sizes, were shown in operation, with a complete line of photographs showing installations made by the company in many of the largest mills. The exhibit was a striking one.

H. S. Horrocks, assisted by Mr. Bean, on hosiery machines, and Mr. Sloan on ribbers, all experts in the knitting line, were in charge of the exhibit made by the H. Brinton Co., 213 Race St., Philadelphia. Their display of new and up-to-date knitting machinery consisted of three of their new style revolving needle cylinder hosiery knitters, one 3 1/4 inch and one 3 3/4 inch, on transfer work for half hose, together with a new French welt ribber, with dogless attachment and two-speed, aiso one 3 3/4 inch automatic ribber making rib legs for children's hose. In addition to these machines they also exhibited an 18 inch 12 feet plain body machine cut 14 needles to the inch. The entire exhibit was a going one and attracted attention.

The Rhode Island Processing Co., Coventry, R. I., with "Bill" Handley, their traveling representative in charge, fitted up a very interesting exhibit showing some new features in the mercerizing of cotton varns which made their visitors sit up and take notice.

F. A. Straus & Co., 451-53 4th Ave., New York, engaged in the manufacture of silk, as well as worsted yarns, with mills in Trenton, N. J., not only exhibited a line of yarns of their own manufacture but also artificial silks and combination yarns especially made for the hosiery and underwear trade.

**The H. Brinton Co.**

The Standard Processing Co., Chattanooga, Tenn., through their Philadelphia offices, with Messrs. Thatcher, Sr. and Jr., in charge, for the first time exhibited the various grades of yarns mercerized by them and for which orders have been coming in so rapidly that they are at the present time greatly increasing their plant to take care of them.

Andreykovicz & Dunk, Inc., 58 N. Front St., Philadelphia, one of the oldest dyestuffs houses in the country, exhibited their various lines of colors, blacks, etc., dyed on samples of hosiery and cotton and mercerized yarns, silk, art silk and cotton and mixed hosiery, together with a line of their various grades of soaps, softeners, etc.

The Permutit Company's exhibit consisted of one of their water softening filters, which, although only two feet in diameter, is similar in

Permutit Co.

every respect to the Permutit filters installed in textile mills. In addition to this, demonstrating models were used to soften hard well waters for the visiting manufacturers. Many such demonstrations were made every day of the exhibit and the visitors were greatly impressed with the simplicity of the Permutit system, which reduces the

Harding & Fancourt, Inc.

hardness of any water down to absolute zero. Photographs of Permutit installations were displayed and a striking feature of the exhibit was a sign containing a list of the knitting mills in the United States which have already installed Permutit. This list includes the leaders in every branch of the knitting industry.

Harding & Fancourt, Inc., 516 S. Delaware Ave., Philadelphia, exhibited their well known line of oils, soaps and softeners for use in the knitting trades. Some of these specialties of particular interest to the trade are their No. 35 hosiery softening oil, which takes the place of olive oil as a softener at a saving of 75 per cent. over the cost of that oil. Taking advantage of the scarcity of dyestuffs and feeling that there will be a large demand for bleached goods, they showed their California white bleachers' soap, which is specially prepared for bleaching purposes, being scientifically made with just a sufficient amount of alkali to kill the acids and insure good even blueing. Both Mr. Harding and Mr. Fancourt were in charge.

The Kaumagraph Co., 3409 W. 38th St., New York City, who have been one of the constant and interested exhibitors, were on hand again this season. They showed their usual lines of unusual gold and colored transfer stamps. They laid special stress on the fact that these are applied by

Kaumagraph Co.

the one medium of heat, no water being required to produce a first-class impression. In addition to the above regular feature, they showed a very compact, effective and inexpensive hosiery stamping machine, which appealed to manufacturers as something that ought to be in every mill. Trowbridge Marston, who for some years past has had charge of the exhibit, was again in attendance, and welcomed all his old friends and in addition new ones whom the company has made since they have been putting these stamps on the market.

C. M. Plowman & Co., 242 Chestnut St., Philadelphia, one of the new exhibitors at the show, fitted up a booth in a most attractive manner, in which they showed an extensive line of carded and combed frame and mule spun cones for knitting purposes as well as yarns that were bleached, dyed and mercerized.

Universal Winding Co.

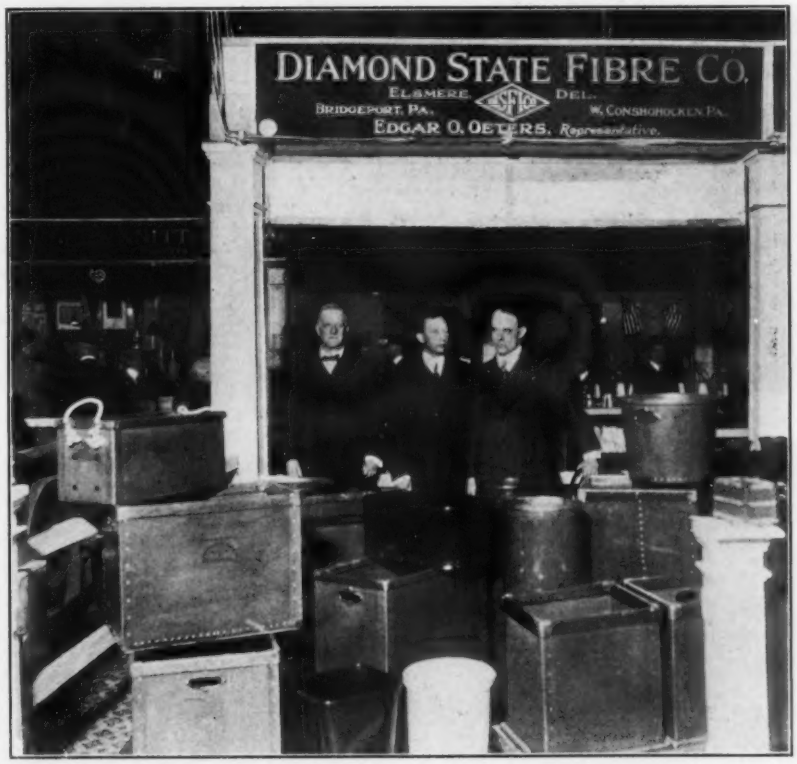
J. B. Ford Co.

The Universal Winding Co., Boston, was showing a new machine for winding artificial silk for knitting purposes. They said the tendency of the manufacturer of late has been toward the finer yarns, both in cotton, silk and artificial silk, and it is to meet this growing demand that this machine was put out. The package appears to be a combination of a cone and a cop. The silk or artificial silk when drawn off this package does not come in contact with the surface and there is consequently no drag, and perfectly even knitting can be produced. They also showed a smaller machine used for winding fine splicing yarns on cones, which by putting on the amount of six or eight mill cops makes the handling very economical. Their show case, containing many different samples of the work of their machines in cotton silk and artificial silk, attracted a great deal of attention. Frederick H. Bishop, the secretary of the company from Boston, was in attendance as usual.

Waste baling machines, all steel and fireproof, were exhibited by the Bicking Paper Co., 111 N. 2nd St., Philadelphia, a number of these machines having been installed in textile mills within the last year, in each case satisfaction being expressed by the users.

The Charles Beck Company, 609 Chestnut St., Philadelphia, this year as usual exhibited the Brehmer pointed staple textile stitching machines used in many mills for the purpose of attaching rider tickets and brand labels to hosiery and underwear. From 250 to 500 dozen pairs per day can be stitched on one machine. They also showed a Keystone gem textile cutter and the Afco gold stamping press and machine for stamping brand names on the heels and toes of hosiery.

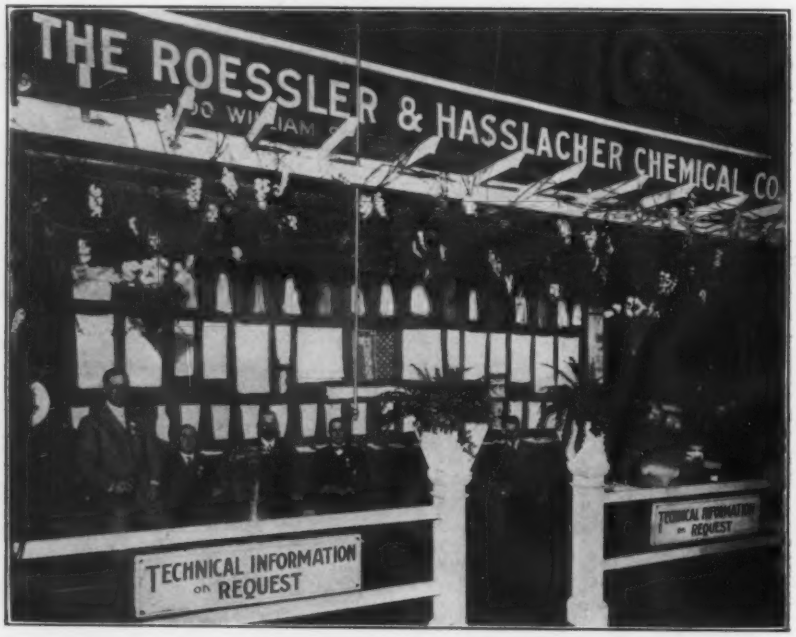
The "Wyandotte" booth, with the bleaching products manufactured and shown by the J. B Ford Co., Wyandotte, Mich., was again one of the attractive exhibits of the show. The display consisted of hosiery, underwear and other textile fabrics of silk, cotton, wool, worsted and other fibers and yarns of all kinds, etc., treated by the various Wyandotte products which have become so popular throughout the trade. F. S. Klebart, field manager for the Textile Soda Department, was, as usual, in charge of the exhibit.




Diamond State Fibre Co.

The Diamond State Fibre Company, Bridgeport, Pa., exhibited a great many special articles used by textile mills, but the ones used by the hosiery and underwear manufacturers are the Diamond vulcanized fiber receptacles, such as mill baskets, trucks, roving cans, etc., the Disfico press board, noise-

Jones & Hardy




Roessler & Hasslacher Chemical Co.

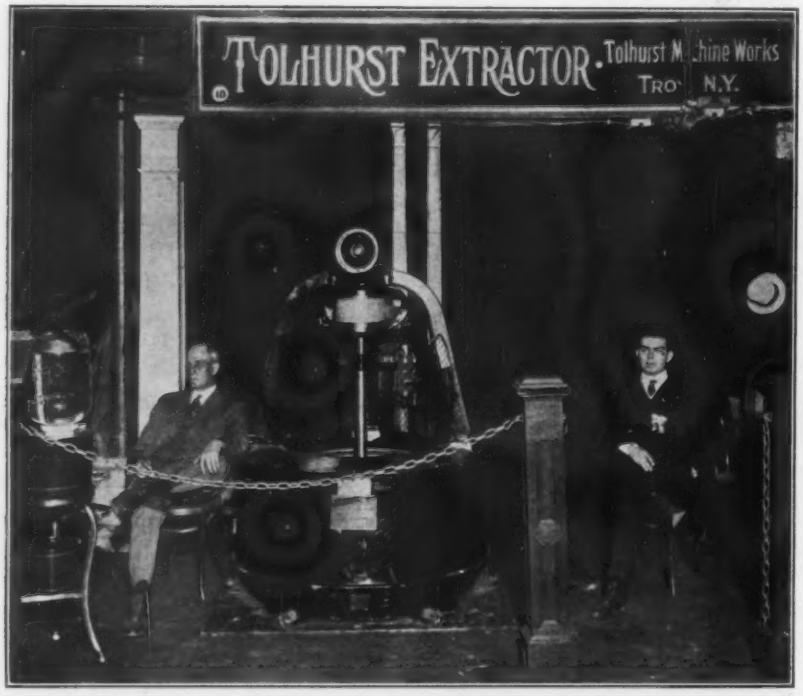
**American Laundry Machinery Co.**

less fiber gears, and fiber truck wheels. These products are made from heavy, hard, vulcanized fiber, which should not be confused with the soft fiber or star fiber. The Diamond vulcanized fiber receptacles are light, durable, fire-resistent, and economical. They will not dent like metal or

**Smith, Drum & Co**

splinter like wood, and have proven to be the ideal mill receptacle. They also exhibited new press boards, which have been designed to last twice as long as the cheaper board and to sell at about the same price. The Diamond fiber truck wheels are noiseless and are made in all sizes. They will prolong the life of floors and will not tear up concrete like the metal wheels.

Jones & Hardy, Inc., of Hudson, N. Y., in addition to the many textile specialties for which they have the exclusive agency, among them being the well-known Excelsior and new process press boards, the Perkins toggle feed dog, for use on Singer buttonhole and tacking machines, check rings and springs, "J. & H." sewing machine belting, etc., also exhibited additional specialties which




**Tolhurst Machine Works**

have been brought out during the past year, the most important of these being an indelible ink, guaranteed not to wash out of any fabrics, and to withstand sulphur, lime peroxide or other bleach.

The exhibit of Puroxide bleached goods attracted attention from practical men who understand that the bleaching of fabrics is fundamental for the ready sale of goods. If it is not done right neither the whites nor the delicate dyeings will be right. It is no longer a question of producing a white which will remain white only until the goods are sold and will then quickly yellow-up; or, of giving artificial strength to the damaged fiber by finishing processes which prove their deceit after the first laundering. What the public now expects are white goods that remain white and that show undiminished strength and wearing quailties. How can anyone in the long run hope to compete if his bleached goods do not come up to these requirements?

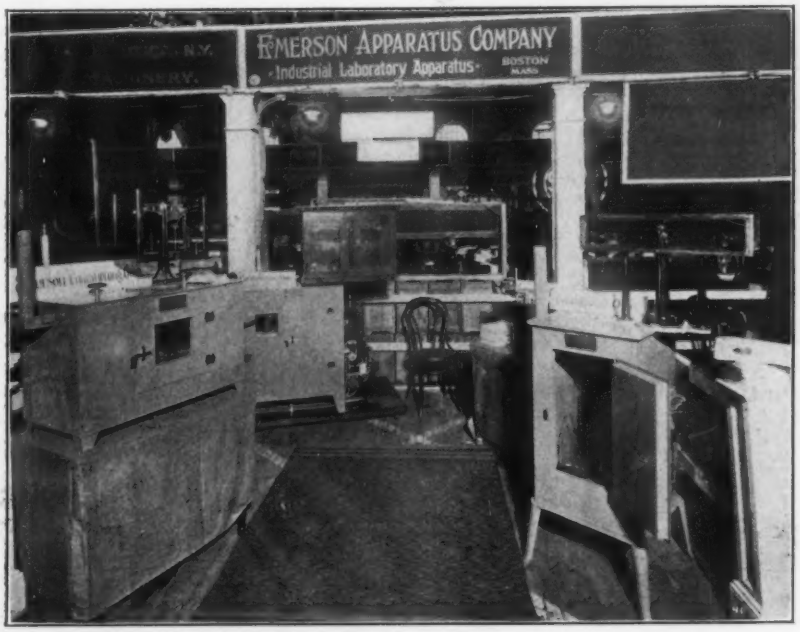
The American Laundry Machinery Co., Cincinnati, O., on account of the increasing interest shown by the knitting trade in their various lines of machinery for the purpose of ironing, finishing, washing and centrifugal extracting, being the largest builders of machinery of this line in the world, showed in operation the following machines: their "American" automatic underwear press recently illustrated in these columns, representing their latest development in this class of machinery where quality, quantity and low production cost is to be obtained. Their new "American" foot power underwear press dispenses with a gas burner on the head and is so constructed as to be operated entirely by the feet, the lowering of the head and injection of the steam being entirely controlled in this manner. It may be entirely operated by a girl. The "American" overdriven extractor is a machine which is already well known to the trade and needs no description. The exhibit also contained special fulling washers and mangles of several different types and sizes. The company having fifty representatives on the road announced that any inquiries as to their machines would be given prompt and personal attention.

Smith, Drum & Co. occupied their usual location near the door and exhibited an interesting line of dyeing and finishing machinery for hosiery

and knit goods. This concern has recently removed to a larger factory on Allegheny Ave., below Fifth St., Philadelphia. Among the machines exhibited were the following: A rotary singeing machine fitted with their automatic gas controller for which a patent has been recently issued: a floating thread cutter which has been adopted in many hosiery mills; a patented rotary circulating dyeing machine which is specially adapted for dyeing natural or artificial silk hosiery; one of their improved heavy screw power hosiery presses and a rotary machine of a new type that can be used for chroming, washing or dyeing.

The Tolhurst Machine Works, of Troy, N. Y., exhibited their latest type of over driven self-balancing hydro-extractor, driven by a motor directly belted to the extractor. The motor was of special design, and does not require any starting rheostat or any other device except a simple double throw switch. Although the Tolhurst Machine Works make other types of hydro-extractors, namely, the open top, etc., they believe that the over-driven style, such as was shown, is the best for all ground work and the most dependable that a mill can install for several reasons. One of them is on account of the unique self-balancing feature requiring no rubbers or springs to get out of adjustment and permitting the basket to take care of unbalanced loads without undue strain on the bearings. Another notable feature of the Tolhurst extractor is the adjustable idlers, patented, which permit of a change of drive from, say, motor to belt, or engine or from floor to ceiling. The exhibition extractor was fitted up with safety guard and with all the latest improvements that the Tolhurst Machine Works have devised. The exhibit was in charge of F. A. Tolhurst and D. C. Patton. They took pleasure in demonstrating the machine at all times.

The principal feature of interest in the exhibit of the Emerson Apparatus Co., 251 Causeway St., Boston, Mass., consisted of their conditioning ovens. This apparatus is designed to determine the moisture content of textile materials of all kinds, including raw products and materials in process of manufacture, the ovens being used in testing cotton, silk, wool, worsted and hemp and their products. Three different ovens were exhibited, the variety of design enabling manufacturers to pick that type of oven which is best suited for the particular class of product which is to be tested in his line of work. In addition to this above apparatus, they exhibited the Emerson Calorimeter outfit, an apparatus designed to determine the heating value of coal and other fuels. This apparatus is used as a check on the purchase of coal in large quantities, and makes possible the purchase of raw material on a basis of specifications.




**Emerson Apparatus Co.**

Richard A. Blythe, Inc., with offices in the Mariner & Merchant Bldg., selling agents for the Crown Manufacturing Co., Pawtucket, R. I., spinners of high grade Eastern combed yarns and the Lehigh Valley Silk Mills, South Bethlehem, Pa., hosiery silks, showed the various grades of silk and cotton yarns which they handled in a booth fitted up for the reception and entertainment of their many customers.

The Barber-Colman Co., Rockford, Ill., Boston, Mass., and Greenville, S. C., exhibited their well known Barber knotter for spooling and winding and the model K Barber warp tying machine for tying in warps back of the loom. This machine takes the place of the hand twister or tyer, and has a capacity of from two to four thousand ends per hour, depending on the class of work being handled. The exhibit was in charge of L. G. Goodrich and E. H. Bacon of Boston and J. H.

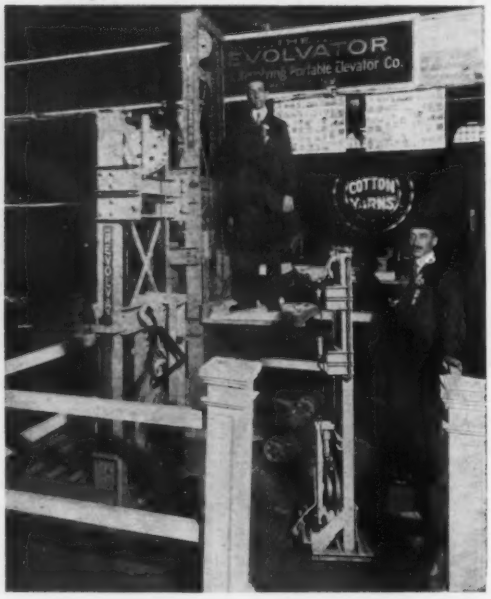
**Barber-Colman Co.**

Spencer, Greenville, S. C. R. E. McCausland, field manager, from the factory at Rockford, Ill., was also in attendance throughout the week.

The Ainslee Knitting Machine Co., of Brooklyn, N. Y., exhibited a machine, which they claim will produce more goods than any circular machine with automatic racking device. It will make any number of designs and rack from one to three needles, besides making a selvedge body and the plaiting on transparent patters. One lever will change from rib to cardigan, will set the stitch tighter or looser and change from cardigan to tubular and make any number of rounds with small piece of American chain. Chain for any design can be made at an expense of 45 cents. Their brushing machine built by them puts a nap on the goods with one operation. They also had on exhibit their button hole spacing attachment, which will accurately mark button holes, thus doing away with the old method of marking by chalk. The operations of the different machines were explained by S. Broadwin and S. Mischcon.

The Enterprise Mill Soap Works, Inc., 2229-31-33 N. 12th St., Philadelphia, had a tastefully decorated booth where John F. McNeill, J. S. MacWilliams and Joseph Leberman were in attendance to receive their guests and demonstrate to them the working qualities of their latest productions such as Esco glycerine softener, Esco bleaching solvent and Esco silk solvent.

The New York Revolving Portable Elevator Co., Jersey City, N. J., in their exhibit this year showed a machine which has never been shown in public before. They demonstrated the innumerable uses to which a portable elevator can be put when in use in a textile mill and exhibited one of their motor driven revolvators, equipped with the latest improved safety device, together with a hand-power revolvator, Model F, equipped with safety raising and lowering devices, floor lock and other patented features. In addition they also exhibited a one-half size portable elevator, non-re-

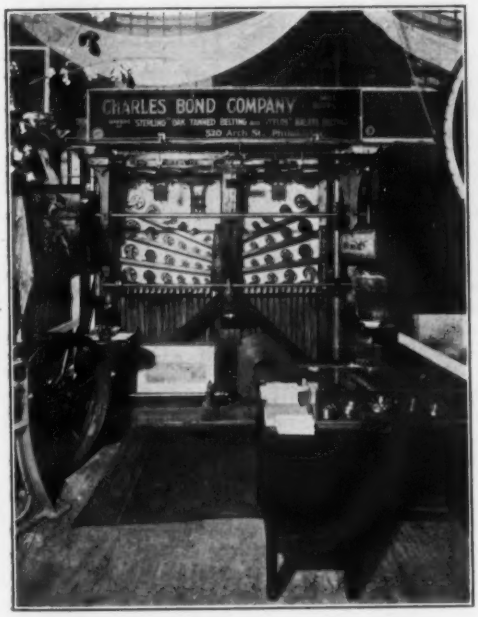



**New York Revolving Portable Elevator Co.**

volving type, which was rather an attractive feature of the show. This machine was not a toy but capable of lifting from 300 to 400 lbs. and contained everything now embodied in this type of elevator construction. Messrs. Dana, Gray and Fisher were in attendance to oblige when a ride or practical demonstration was desired.

H. A. James & Co., Inc., 315 Fourth Ave., New York City, showed a line of various grades of yarns in practically all counts, combed and carded peelers as well as Sea Island and Egyptian staples, all of which were of interest to the knitting trades.

The Charles Bond Co., handlers of mill supplies for the textile trades, with offices and warehouses at 520 Arch St., Philadelphia, exhibited a general line of supplies for the knitting and other trades, including transmission machinery and oak tanned leather belting; the Bond patent (both cast iron and steel) hangers, with universal adjustment, ring oilings with babbitted and reamed bearings. The Bond cast iron hanger is designed upon lines so as to distribute the metal in order that there is ample sufficiency of iron where it is most required and where the greatest strain takes place. One of the newest things shown by them was their steel hanger frame which is scientifically constructed; the metal folded to give the greatest strength and rigidity, its weight being only about one-half as much as the regular cast iron hangers. S. K. F.




Chas. Bond Co.

ball bearings was another and important feature of their exhibit, their operating models showing the savings to be obtained by the use of these bearings, especially the employment of the S. K. F. self-aligning ball bearing hangers which offers the simplest solution to the power distribution problem. The oak tanned leather belting shown by them is made in their own factory.

C. Walker Jones, treasurer of the Beckert Needle and Supply Co., Philadelphia, and president of the Currier Needle Co., Manchester, N. H., with offices and warerooms at 4929 Greene St., Germantown, Philadelphia, where he handles both German and American made needles for all kinds of knitting machines, fitted up an attractive booth, which was always filled, not only by his many friends and customers but other visitors to the show.

T. J. Porter & Sons, 119 South Fourth St., Philadelphia, dealers in high grades of foreign yarns, exhibited their wares in attractive manner. The exhibit consisted of yarns from Robert Marshland & Co., Ltd., Manchester, England, who for almost 105 years have been spinning fine cotton yarns. Their mercerized ran in counts from 2/38 to 2/160, combed Sea Island, Egyptian and peeler; Lindsay, Thompson & Co., Ltd., Belfast, Ireland, linen yarns especially adapted to knitting

T. J. Porter & Sons

the heel and toe in cotton hosiery, showing linen yarns equal to 1/25, 30s, 35s, 40s, 50s and 60s cotton splicing. For the sweater trade they also showed yarns spun by Sir Titus Salt, Bart., Sons & Co., Ltd., Saltaire, England; consisting of cashmeres, camel hair, vicuna and angora mixtures, a line of yarns new to this country; also heather mixtures in wool and worsted spun by John Paton & Co., Ltd., Alloa, Scotland. They were represented by members of the firm headed by William and Stewart Porter.

The Metropolitan Sewing Machine Company, of Nyack, N. Y., as a special feature of their exhibit, showed a tapered collarette machine, which makes a tapered collarette absolutely automatically. Another feature was their long arm, high speed, rotary top shaft machine. Their general line of special machines, such as button stay, button facing, three-needle cuff and flap machines, were also shown in addition to their improved lace machine. William O'Donnell, the Philadelphia manager, was in charge of the exhibit, assisted by the Philadelphia corps of mechanics, in addition to some factory experts.

The exhibit of Walter R. Zeigler, Riverside, N. J., consisted of the various lines of bands, labels, box tops, etc., and in fact all classes of printing necesary for use in knitting mills, showing what can be done in the way of printing when a plant is equipped with the latest up-to-date machinery.

Schaum and Uhlinger, Inc., 2nd St. and Glenwood Ave., Philadelphia, exhibited one of their standard electric driven extractors, with an experienced representative to explain the merits of the machine. While the earlier extractors were steam engine or belt driven, owing to the extended ues of electric power the demand for motor driven appliances is rapidly increasing. Schaum & Uhlinger's extractors appealed to their visitors from the fact that they are equipped with motors of a standard type, furnished with windings impregnated with a compound to render them moisture proof. Another strong feature of the machine is the absence of belting, which requires considerable attention, stirs up more or less dirt,

**Schaum & Uhlinger, Inc.**

is a cause of considerable annoyance and expense when used for such severe service as starting an extractor.

Wm. F. Corbett, 3720 N. Broad St., Philadelphia, is well known to the knitters as the representative of the German-American Needle Co., not only carrying but exhibiting a complete stock of needles for all domestic as well as foreign machines for all classes of knit goods, with special knitters for hosiery machines.

The Clipper Belt Lacer Co., Grand Rapids, Mich., through their Philadelphia office, 700 Arch St., showed the Clipper belt lacer and belt hooks. The lacer consists of a small portable tool which can be taken to the belt, set on the floor or on a box, together with a row of Clipper belt hooks of the proper width placed in the tool. The Clipper belt hooks shown at the exhibition were made of special steel wire, combining great tensile strength with rigiditv and wearing qualities capable of standing a strain of over 400 pounds to the inch on single belts and more on double belts.

Making tassels or pompoms for skating caps, toques, etc., was demonstrated by the Grosser Knitting Machine Co., on a machine of their construction which operates at high speed and without waste. It is compact and runs at speed of about 1,000 spindle revolutions per minute and can be placed on any sewing machine table and operated by a girl with a little experience who should get a production exceeding 100 dozen per ten hours. Pompoms of any size, color or mixture can be made with no waste, perfectly round in shape and no clipping being required. The machine is sold at a reasonable price and covered by the usual Grosser guarantees.

F. A. Brown and Louis F. Schaeffer, in charge of the selling force of Thomas Wolstenhohne Sons & Co., Frankford Ave. and Westmoreland Sts., Philadelphia, were, as in past years, in charge of the company's exhibit, which consisted of the various lines of domestic, French and Bradford spun worsted yarns.

The Schaut Manufacturing Co., Reading, Pa., exhibited hosiery boards and frames of all kinds for use in knitting mills and as a reminder to the visitors to the show that their work is quality distributed a souvenir in the shape of a miniature wooden hosiery board requesting their business on future orders.

The Lynwood Manufacturing Co., Hancock and Westmoreland Sts., Philadelphia, exhibited the various lines of products manufactured in their plant, consisting of hosiery stamps, springbeard needles and supplies for finishing rooms, together with a new measuring device for full fashioned knitters.

William Corey Co., of Manchester, N. H., had an interesting exhibit consisting of a full line of every known variety of latch needle in all different gauges and lengths, of which they are manufacturers. C. A. Williams, treasurer and general manager, was in attendance, assisted by Joseph Engle, the Philadelphia representative.

The Textile World Record's booth served as a reception room for their friends and customers and headquarters for the staff. Lord & Nagle Co.'s various textile publications, directories and books were on sale. Henry G. Lord, treasurer of the company, was in charge, assisted by William J. Flesh, the Philadelphia manager, Arthur Nagle and Henry T. Ross of the Boston office.

The various textile publications represented at the exhibition consisted of the following journals: The Textile Manufacturers' Journal, New York; American Cotton & Wool Reporter, Boston, Mass.; "Cotton," Atlanta, Ga.; Posselt's Textile Journal, Philadelphia; Fibre & Fabric, Boston; Knit Goods, New York, and Textile American, Boston, Mass. All had representatives on the floor for the purpose of reporting the convention and exhibition and entertaining their friends.

Yarns mercerized in their plant in Camden, N. J., composed the exhibit of Peech Sons and Phillips Co., who had as their representatives at the show Messrs. Peech and Phillips, assisted by their traveling representative, Geo. C. Turner.

# Knitting Department

## THE KNIT GOODS SITUATION

Under the existing conditions of advanced cost of raw materials, it is surprising that there have not been more advances in prices of hosiery and underwear. With the return of better times it was to be expected that there would be general advances. The cotton piece goods market has advanced all through the various lines, in some instances on account of the scarcity of dye stuffs, but even in gray goods the advance has been strong and manufacturers are holding firmly to the increase and making sales at the new prices. Underwear and hosiery have been marked up only in spots and nearly all of the increases have been made by Southern mills. One Southern mill advanced their seven pound vests and pants about thirty days ago ten cents a dozen and their union suits twenty-five cents a dozen and since then they have put on another increase of five cents a dozen on the vests and pants. As soon as the mills have received a fair duplicate business, they will follow these leaders. They are waiting until they are in a position to refuse business except on a new basis and this time must come soon.

The reports from the West are good and no doubt many reorders on fall merchandise are being held back until the buyers come to the market to order their spring lines. Unless business shows more snap than at present, the buyer will hesitate before paying the higher prices and will put off buying as long as possible, hoping for a break. When prices move upward the buyer will either pay the increased cost or buy lighter weight or inferior merchandise.

There has been a great improvement in conditions in the South. While the Southern merchants do not expect to be in the market for much spring merchandise, they are looking forward to a good fall business. Light stocks will be a big help when they start buying, for the South is not so insistent on special packing as the Western buyer is.

Hosiery business has picked up a good deal in the past thirty days, but there is still room for improvement. Silk hosiery still holds its own, especially the 25 cent silk boot or fiber hose. Some mills have advanced their prices ten and fifteen cents a dozen and are sold up for several weeks. There are so many fancy or high colored hose in demand to-day, that a mill has to be very careful about making seconds. Before they get one shade right, a demand develops for some new shade. The small and medium sized buyer does not want more than thirty dozen of a color in the new shades. This expense is partly covered by some mills that charge five cents a dozen extra for thirty dozen lots.

There has been some demand for two-color hose, with the boot of one shade and the top of another. These have been brought out in 50 cent silk hose and in the 25 cent mercerized hose. There are inquiries for this style in the 25 cent fiber hose. One manufacturer has made the goods in various color silk boots in the 25 cent grade, but only in black tops. The best sellers are those with pink or flesh color tops.

War contracts have fallen off perceptibly on all cotton and woolen goods and inquiries are few and far between. Should the war continue, the business from now on will be placed through regular and more legitimate channels than in the past, where in some instances inquiries and requests for samples have been made by almost anyone who had a relative abroad. There have been a good many profits made between the real buyer and the manufacturer.

The foreign buyers no doubt think our prices are very high and blame the American manufacturer for holding him up, when it is really their own fault, as they all wanted to keep themselves under cover and not let their identity be known. Many manufacturers were obliged to do their business with free lances. All they wanted to be sure of was that there were funds in New York to

take care of their shipments and even then they did not always collect. There is much hosiery and underwear abroad today that is lying there subject to the order of the American manufacturer. Merchandise would be shipped cash on board dock and if payment was not made but promised soon, the manufacturer took a chance to let the goods go on the steamer.

Bathing suit manufacturers are now beginning to get their usual hurry up duplicate orders and are looking forward to a good business the balance of the season. The manufacturer who can afford to make up and hold a surplus stock can make an extra profit.

Duplicate orders on spring underwear have been fairly satisfactory to the manufacturer and in a good many instances they have not been able to accept same on account of the limited time given by the buyer to execute them.

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## THE EVOLUTION OF A SEAM

The old-fashioned hand-made seam on clothing is the kind our grandmothers and our great-grandmothers made at the rate of about 50 stitches a minute when they felt well. As a rule it was a strong seam and answered the needs of their growing families and the families of their sons and daughters and grandchildren as one generation succeeded another, but when knit underwear became the vogue and manufacturers began to make knitted undergarments for the public, their efforts were directed not only toward rapid production by the use of sewing machines but also to improvements in the appearance of the seams. Their rough scissor-cut edges were unsightly as well as uncomfortable to the wearer and the need of a machine-trimmed seam became paramount. About 1880 the Willcox & Gibbs Seaming and Trimming Machine was placed on the market. This seam received instant recognition by the trade and in fact revolutionized the knitting industry, replacing the unsightly seam theretofore made on knit underwear with a neat closely trimmed seam which ruled the market for a decade.

In 1890 the Willcox & Gibbs Sewing Machine Co. brought out its celebrated "Overlock" machine which marked another important advance in the art, providing a strong, elastic and smooth-covered seam, made in one operation at a speed of 50 stitches a second, i. e., 60 times as fast as was possible in the case of the prehistoric hand-made seam.

Leicester, Nottingham, Chemnitz, Troyes and other European knitting centers, as well as those of our own country, Canada, Mexico and South America, were quick to appreciate the merits of the Overlock seam and soon the leading governments of Europe and the army and navy departments of the United States began specifying the Overlock seam for their military and naval forces. The Overlock seam on knit underwear has been the standard high class seam in the knit goods trade for a quarter of a century and is today an essential requirement in the underwear specifications of the Quartermaster General's office of the War Department and of the Bureau of Supplies of the Navy Department at Washington. Because of its great popularity and the aptness of the descriptive name, the trade both here and abroad has in many cases wrongfully applied the word "Overlock" to seams produced on other types of machines. This is a compliment to the Willcox & Gibbs Sewing Machine Co. and an injury to its business, its well earned laurels being thus availed of by others.

The word "Overlock" was coined by the Willcox & Gibbs Sewing Machine Co. and was registered as a trade mark in the United States and abroad.

The latest word, however, in the evolution of a seam for knit underwear has now been spoken by the Willcox & Gibbs Sewing Machine Co. in its Flatlock patented seam which was introduced to the trade in 1913. Over five millions of knit underwear, chiefly union suits, have already been finished on the Flatlock machine and distributed to the trade.

The Flatlock seam, patented March 31st, 1908, is a perfect union of abutted cut edges forming a very strong, soft and smooth flat

seam no thicker than the fabric itself. It does not irritate the tenderest flesh. This is a result never before reached. The Flatlock seam is made in one operation and at high speed, 50 stitches a second where factory conditions permit. The Flatlock machine and its product is covered by numerous strong and comprehensive patents both in the United States and abroad, and the word Flatlock is registered at Washington and abroad as a trade mark.

## AN IMPROVED UNION SUIT

The union suit shown in the illustrations has recently been patented and is described by the inventor as follows: The garment consists of a tubular knitted body portion, the front half of which is cut away from the region of the waist line downward, leaving only a depending flap at the front. The remaining portion of the tube is slit centrally at the back from the waist line downward, to form in part the leg portions which are completed both back and front by supplemental pieces which are seamed to each other, and also to the edges of the slit portions of the tube, and further united at the front to the depending flap already mentioned, and at the back at the waist line.

The garment is so pieced and seamed as to leave an opening extending from a point directly below the waist line at the front down to the crotch and at the back from the latter point upward to the center of the waist line. The pieces forming the front and back leg portions are provided with overlapping flaps which normally close the opening above referred to.

Fig. 1 is a front view of the undergarment; Fig. 2 is a rear view; Fig. 3 is a perspective view showing the manner of cutting the main portion of the garment from a knitted tube. The garment is made from tubular knitting. The upper or body portion is thus made, and is provided with shoulder straps, forming the usual neck and arm apertures. The front half of the tube is cut away below the waist line whereby the body portion terminates in front in a depending flap. The remaining back half of the tube is extended, below the waist to the bottom of the leg portions, and slit at the center from the waist downward. This extension thus divided forms in part the leg portions of the garment, which are indicated at 4 and 5. To the extension, 6, thus formed is secured a supplemental piece, 7, by means of stitching along the line, 8—9. The rear of the leg portion thus formed by the parts, 6 and 7, is stitched along the lines, 10—11 and 12—13, to the front leg portion, 14, which is secured at the top to the depending curved flap, 3, by stitching from the point, 15, to the point, 10. The stitching, 12—13, terminates at the crotch of the garment, forming a tubular leg

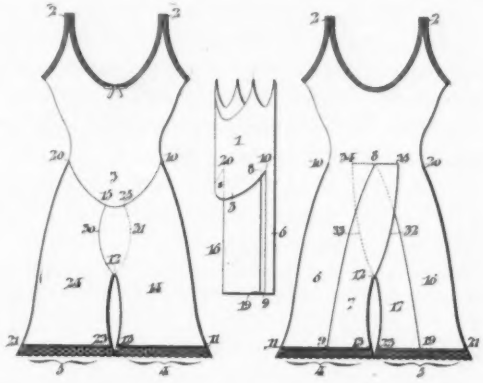


FIG. 1 FIG. 3 FIG. 2

portion having an opening between the points, 12—15, in the front, and in the rear between points, 8—12.

The leg portion, 5, is formed similar to the leg portion, 4, in that it includes a supplemental piece, 17, at the rear of the extension, 16, stitched thereto along the line, 8—19. The said leg portion, 5, is completed at the front by piece, 24, which is in turn stitched to the parts, 16 and 17, along the lines, 20—21 and 12—23, the latter seam terminating like seam, 12—13, in the crotch of the garment. The piece, 24, is likewise attached at the top to the depending curved portion, 3, of the body portion along the line, 20—25. The tube for the leg, 5, is also provided with an opening extending in the front between points, 12—25, and at the rear between points, 8—12.

The joining of the flap, 3, at its lower edge

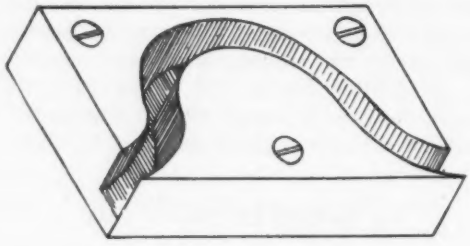
to the front leg portions avoids any seam at the waist line in front which would cause discomfort under pressure of the weight of the lower parts of the garment. The opening at the front of the garment is closed by overlapping flaps, 30 and 31, formed respectively on the front leg portions, 14 and 24, this overlap extending along the seam, 10—20, between the points, 15—25. At the rear of the garment, the opening is closed by the overlapping upper portions, 32 and 33, of the pieces, 7 and 17. This overlap extends to the line, 34—35, forming the attachment of these pieces at the top to the body portion. The garment consists of five separate pieces, so cut and inter-seamed as to form a union garment having an opening extending from a point slightly below the waist line in front to a point on the waist line at the center of the back. This opening is covered by overlapping flaps.

### FANCY KNITTING

*Editor Textile World Record:*

Pleast give me more details regarding Fig. 6, illustrated in the article on "Fancy Knitting", page 121 of the December issue. I am very much interested in this article and would like to see more along this line. Knitter (2439).

The fabric illustrated at Fig. 6 in the December issue was an experiment. I was working on a four-inch, two-feed frame with every other dial out. It was a tuck stitch, one thread black and the other red. It made an attractive vertical stripe. I wondered what an extra thread would do. It took some time to figure it out, but in the end I made a two-way cam, something like the old fashioned dial tuck cam, shown in the illustration. This cam I made long enough to fit in place of the pick-up and filler cams in the cylinder. This cam would push up and pull down at once, so I had a yarn guide made to fit into the needles. This guide was made of thin sheet iron, a piece of barrel hoop in fact, fastened to the cylinder plate by the plate screws. The needles would push up only enough to clear the latches just in front of the plain stitch guide. The extra thread was run in and turned around by hand a few times to get the effect. I had to put double springs around the cylinder needles and pull the take-up harder to get started. When the goods were knit thy were hard and stiff, would al-



A TWO-WAY CAM

most stand alone and proved to be of no value. Later I made a sweater coat rack of it, as it just about served for this purpose, making a firm body for button-holes and buttons. Trenton.

### STANDARD LENGTHS FOR HOSIERY

*Editor Textile World Record:*

Please give the standard lengths for misses' hose and men's half hose. Knitter (2460).

The length of misses' hose should be three times the size of the foot. In some instances the standard manufacturers vary this one inch. In other words, a 9-inch hose for misses should measure 26 to 27 inches. Many manufacturers do not have machines to make every individual size of children's or misses' hose. They have machines that make even sizes and they board out the uneven sizes. The consequence is that the length of 5 and 5 1/2, for example, might be the same.

The standard measurements for half hose are as follows:

| | |
|---|---|
| Feed plate and licker | .012 inch |
| Mote knife and licker | .012 inch |
| Licker screen nose | .009 inch |
| Licker screen back | .125 inch |
| Cylinder and licker | .009 inch |
| Cylinder screen | .032 inch |
| Cylinder and back plate | .017 inch |
| Cylinder and tops, back | .010 inch |
| Cylinder and tops, front | .007 inch |
| Cylinder and doffer | .005 inch |

The rib top on all sizes should be the same, 5 1/2 inches. Ardmore.

# *Dyeing, Bleaching, Finishing, Etc.*

## AMERICAN DYE MAKING

BY BETA-NAPHTHOL

Considerable interest has been aroused during the past four or five months by the rumors that have been current regarding the possibility of dyestuffs being made in this country. No doubt color has been lent to this by the final steps being taken by certain of the larger steel companies contracting for benzol recovery plants to be operated at their coke ovens and which, from present indications, seem to indicate that in the near future there will be an immense amount of benzol and toluol available for a number of purposes, but which, for the present, will be consumed in channels other than in the production of dyes.

Several months ago the daily papers and magazines heralded Edison as the "inventor" of a process that would relieve the shortage of that product, and supply all other quantities necessary "for dye making." Further investigation demonstrated, however, that what Edison did was to put in practical operation on a scale sufficient for his then needs, an old and well known synthetic process, that had never been used practically for the reason that a sufficiently large supply of carbolic acid of all grades was readily available from coal-tar. Still further investigation showed conclusively that Mr. Edison had no thought whatever of producing carbolic for any outside industries.

The benzol recovery processes as applied to coke oven gases are numerous, but only a few of them are used. When all are in operation in this country, an immense volume of benzol will be obtained, and when the war is over, and its use for military purposes ceases, then the prospective dye maker will be able to procure more than he can possibly use.

During recent months, large interests have been closely investigating the possibilities of manufacturing artificial dyestuffs on a more extended scale in this country than has heretofore been attempted, and it is to be expected that no final decision will be reached until all phases of the situation are considered, from increased duties to first choice of products to be made.

There is no doubt but that an extension of the present American artificial color industry is imminent, and it is hazardous to suggest that a transplanting of some portion of the dye industry will not occur. There has been much written of late tending to show that an extension of the dye making industry in this country is not feasible, but upon investigating the arguments advanced, it is seen that they generally focus at one point, as follows: Every pound of artificial dyestuff made elsewhere than in Germany, is a pound of coloring matter less for that country to make and sell. This, briefly, is the crux of all the arguments that have been advanced by those who have been inspired, or who may have taken it upon themselves to discredit the possibilities of "Aniline" dye making in the United States, and who, also, by means of other arguments are still endeavoring to discourage any attempts intended to arouse interest in fostering a possible extension of such an industry.

It has been practically declared that the dye industry is about a "one nation" business, but it does not appear at all reasonable that the United States, with its great wealth of benzol and other raw products, should stand idly aside, and not attempt to produce from this same benzol, supplies of value for American manufacturers. Benzol to the extent of over 20,000,000 gallons has been allowed to go to waste from our own coke ovens alone, and now, when practical steps are being taken to utilize this valuable by-product, the scheme for an American dye industry is declared nonsensical.

Assertions have also been made that the United States does not have the research chemicals necessary to carry on the work of dye making, but this is not quite correct. It

is true that research in dye discovering has not been fostered in this country for the reason that there has been no practical inducement for our young chemists to take up this special field of investigation. An established dye industry, even smaller than now exists in Switzerland, will be the means of stimulating dye research in our universities, although for the purpose of actual dye making, the absolute need of "trained research chemists" is not essential.

From benzol and naphthalene, alone, both of which are available in our country under normal conditions, and with such heavy chemicals as are now produced here in enormous quantities, a very good range of valuable dyes could be made, and which would suffice to keep both cotton and woolen mills working on many lines of goods, the output of which is today seriously threatened by the dye shortage.

Some scientific gentlemen, probably not familiar with dye making, have greatly confused the minds of American textile manufacturers in the matter of establishing a dye making plant, by burying a few simple manufacturing propositions under an immensity of chemical theories that are foreign to the point. They fail to separate clearly the "dye research chemist" from the practical works chemist and the engineer-chemist, both of whom are responsible for the output of dye, long after the research chemist has done his work.

With stimulating inducements, a number of young chemists now in our colleges are quite ready to devote themselves to dye work, and, without doubt, the opportunity for them will in time arrive.

At present the dye "business" is in a chaotic state, but in due time it will be so adjusted that the mills, not only for wool, cotton and silk, but those of other industries where such colors are used, such as paper, leather, furniture, etc., will to a greater extent draw their supplies from American factories.

If the tariff remains as at present, there will be but little hope of any great extension of dye making, but it is to be presumed that some sort of pressure will be brought to bear upon Congress to give suitable protection to an industry that is so necessary to enable our mills to continue working without dependence upon a "one nation industry."

No one will seriously admit that it is proposed to transport or duplicate all that portion of the German dye factories that are necessary to supply America with the dyes it uses, but it is reasonable to concede that dyes will be made from American raw materials, and in American dye factories, so that should the present conditions be again repeated, there will be no serious damage to our mills.

## BRITISH DYE SCHEME CRITICISED

From the Manchester Guardian

Dr. W. H. Perkin, in a presidential address before the Chemical Society in London recently, discussed the position of the organic chemical industry, and in his closing remarks dealt with the British dye scheme. In his opinion, he said, the universities were perhaps more to blame than the manufacturers for our loss of the aniline dye industry. The step which did more than anything else to bring about the wonderful development of organic chemistry in Germany was the provision that research must be an essential part in the training of every German student of chemistry. In this country close association of the universities with industries did not exist to any extent, and, however distasteful it might appear in some of our academic quarters, this was one of the things we had to aim at in the future. Our manufacturers must make up their minds so to conduct their works that research was going on unceasingly; no works could possibly flourish which was content to manufacture only well known colors and other products that manufacturers could hope to get a satisfactory return on their capital. The manufacturer must therefore see that his laboratories were properly equipped and well supplied with research chemists of ability who had had a sound scientific training, and also some experience in the method of research. All this, however, would avail little unless he had a scientific leader in his works who was able to direct the investigations of

his young staff in the right channels. Not only did German business men understand that the control of a chemical works must be in the hands of the chemist, but they were also careful to remunerate their chemists liberally and to give them a share in any new development they might initiate, with the result that many of their leading chemists were in receipt of salaries quite unheard of in this country.

### DIFFICULTY WITH PATENTS

It seemed to be imagined in many quarters that in order to manufacture a dye which had previously been made in Germany all that was necessary was to follow the directions given in the patent dealing with that particular dye. No greater mistake could possibly be made. It was common knowledge that German manufacturers had for many years devoted large sums to the establishment of an efficient staff of patent experts, whose business it was so to word a patent that, whilst it satisfied the requirements of the patent laws of the various countries in which it was taken out, it only gave such information as was absolutely necessary, and contained no indication of the process which was used in the actual manufacture. In many cases patents were devised which were of no practical value, and were merely intended to mislead and throw competitors on the wrong scent. The discovery of the most efficient method of working patented processes was therefore often a matter of great experimental difficulty, and might require many months of research. Any new company started with the object of manufacturing dyes which previously to the war had been made exclusively in Germany must therefore be prepared to employ a large staff of research chemists for a long period without any prospect of return in the way of dividends. Further it must always be remembered that the Germans have many years' start of the new company, and have accumulated such vast experience of methods of manufacture, and more particularly of the recovery and economical use of by-products, that they were able to sell at a profit at very low prices.

### THE NEW COMPANY AND RESEARCH

The grant to British Dyes, Ltd., for scientific research might be welcomed as a satisfactory addition to the old proposal, mainly because it showed that the Committee of users of dyes had at last found out that research was necessary if the new company was to be a success. His own feeling, however, was that the Company ought to provide for research out of its ordinary capital as a matter of course, and should not require a special subsidy for this purpose. A much better plan would be to employ this grant to subsidize the research laboratories of those universities and technical schools which were willing to specialize in organic chemistry and were prepared to train a certain number of research students with the definite view of their subsequently entering the service of the new company. Supposing the new company were to adopt his view that closer connection between the universities and the industries was most desirable and were to work in conjunction with the staffs of some of the leading organic schools, it was quite obvious that the knowledge of the needs of the worlds which would result from this connection would enable the staff to supply research students of exactly the style required by the works. It was most important not to lose sight of the fact that the experience of the Germans was all in favor of building up very large works, and against spreading manufacturing operations over small works situated in different parts of the country. The reason for this was obvious. In the manufacture of any substance by-products were almost always produced which must either be recovered or used in the manufacture of other saleable products, otherwise serious loss was inevitable. It was exactly in this respect that the Germans were so efficient, and the wonderful organization which enabled them to dove-tail one process into another was one of the reasons why the comparatively small works in this country found it impossible to compete with them even in the manufacture of such simple substances as salicylic acid or beta-naphthol.

## PROCESS OF SATINIZING COTTON FABRICS

A German process for treating cotton fabrics has recently been patented in this country. The process can be carried out before or after mercerizing, preferably after dyeing. It consists in impregnating the goods, after the dyeing process, either in the dry or wet condition, with a salt solution of sodium chloride or chloride of ammonium, after which the goods are passed repeatedly through a calender heated to 100° to 200° C. The surface gloss from the steam is then obliterated from the goods in the ordinary manner and the appearance of the goods may be improved by working them through fluted rollers. The goods thus treated can be placed in water for days without materially impairing the gloss. Other crystallizable salts and organic acids may be employed for the purpose providing they have no injurious action on the fabric.

The effect produced by this satinizing process is explainable in that on the introduction of the woven goods into the calender after impregnation with salt-solution, the heat evaporates the water of the solution and causes a deposition of the salt in extremely fine crystals which settle on the cotton fibers and form reflecting surfaces. With further hot calendering the said crystals become destroyed and thereby produce a further alteration in the fiber surface covering. The resulting silky gloss is rendered permanent even if the fabric is put in water or even hot water.

Salts such as sodium sulphate, chloride of potassium or sodium acetate may be used for this process. Instead of salts any crystallizable substance may be used, for example organic acids or acid salts, naturally those salts only which under the great heat will not injuriously affect the vegetable fiber. For example bisulphate of sodium is not to be used because of becoming minutely crystallized, while substances which produce oxidation are unsuitable owing to the formation of oxycellulose.

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Turkish rugs are largely made by women and children who are paid 5 to 25 cents per day, the average being about 10 cents.

## PERMANENT WHILE THE FIBER LASTS

Among the triumphs of German chemists in the development of coal-tar dyestuffs, none has been more noteworthy than the discovery of artificial indigo and the Indanthrene colors. Artificial indigo gives fast shades of blue, and the Indanthrene dyes produce all the colors of the spectrum, red, orange, yellow, green, blue, indigo and violet, and their innumerable combinations, in shades as permanent as the fiber itself.

The variety and permanence of these colors are illustrated in a color card recently issued by the Badische Co., 128 Duane St., New York, showing thirty-six Indanthrene shades in fancy cotton goods before and after bleaching. The bleach has converted the undyed portion of the cloth from a pronounced drab to a clear white, but the Indanthrene colors remain unchanged. These dyes have established a new standard of fastness for colored cotton goods, to which consumers will hold the textile trade. The color card will be sent to interested parties on application.

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## DRY BLEACHING

*Editor Textile World Record:*

Can you give me any data on bleaching by the dry process? Bayleaf (2472).

There is no "dry bleaching process" as applied to textiles. What might be termed a dry process is the well known sulphur house process, where the material to be bleached is subjected to the action of sulphurous acid gas obtained by causing brimstone or stick sulphur to burn in a limited amount of air. It is doubtful if a dry bleaching process, based on the use of either sulphurous acid or chlorine gas, could be made to yield uniform results. Cromarty.

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## CORRECTION

An error occurred in the recipe for Alizadine Brown M Paste of Read Holliday & Sons, 11 Gold St., New York, and which appeared in the April issue. This should have read "Alizadine Brown M Paste on worsted yarn" instead of "Alizadine Brown M Paste on cotton yarn."

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British India cotton mills produced during the seven months, April-October, 170,805,373 yards in 1912, 682,995,671 yards in 1913, and 632,241,016 yards in 1914.

# Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 194

## GREEN ON WORSTED DRESS GOODS

Green on 100 lbs. worsted dress goods. Prepare a dye bath containing

12⅘ ozs. Amazo Blue
(American Dyewood Company, 80 Maiden Lane, N. Y. City.)
7⅕ ozs. Amazo Fast Yellow L R.
1 oz. 122 gr. Amazo Brill. Red 2 B.
15 lbs. Glaubers Salt.
2½ lbs. Oil of Vitriol.

Enter at 120° F., bring to a boil in ½ hour. Boil ¾ to 1 hour. Rinse.

The colors used to produce the above shade, are recommended for their good levelling qualities and fastness.

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Recipe No. 195

## VIOLET ON WORSTED DRESS GOODS

Violet on 100 lbs. worsted dress goods. Prepare dyebath containing

2 lbs. 3⅕ ozs. Amazo Violet 5 B.
7⅕ ozs. Amazo Violet 4 R.
(American Dyewood Company, 80 Maiden Lane, N. Y. City.)
20 lbs. Glaubers Salt.
3 lbs. Oil of Vitriol.

Enter at 120° F., bring to boil in ½ hour. Boil ¾ to 1 hour. Rinse.

The above colors are noted for their good level dyeing properties and are of satisfactory fastness.

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Recipe No. 196

## VIOLET ON COTTON YARN

Columbia Violet 2 B on 100 lbs. cotton yarn. Prepare the dyebath with

3 lbs. Columbia Violet 2 B.
(Berlin Aniline Works, 213 Water St., New York, N. Y.)
30 lbs. Glauber's Salt, Crystal.
1 lb. Soda Ash.

Enter at 180° F. and dye at a boil for one hour.

Columbia Violet 2 B for a direct cotton color possesses very good fastness to light.

Recipe No. 197

## PINK ON COTTON YARN

Algole Pink T R (Powder) on 100 lbs. cotton yarn. Prepare the dyebath with

1.5 Algole Pink T R (Powder).
(The Bayer Co., 117 Hudson St., New York, N. Y.)
15 lbs. Caustic Soda. (52° T W.)
6 lbs. Hydrosulphite conc.
80 lbs. Glauber's Salt, Crystals.

Stir up the color with water at 105° to 120° F., add amount of caustic soda and hydrosulphite necessary for the whole bath and allow to stand until clear solution is obtained. After pouring reduced dye liquor into bath, stir well, allow to stand a few minutes, introduce material and dye for ¾ to 1 hour at 75° to 85° F. Rinse immediately upon removal from bath, and afterwards acidulate in a ¼ % solution of sulphuric acid and soap at a boil.

Algole Pink T R (Powder) possesses very good fastness to light, chlorine and washing.

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Recipe No. 198

## BROWN ON COTTON YARN

Kryogene Brown A G G N on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Kryogene Brown A G G N.
(Badische Co., 86 Federal St., Boston, Mass.)
5 lbs. Sodium Sulphide, Crystal.
5 lbs. Soda Ash.
80 lbs. Glauber's Salt, Crystal.

Dye at a temperature just below boil for one hour, wring well, expose to air for one-half hour, and finally rinse well.

Kryogene Brown A G G N possesses very good fastness to light and washing.

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Recipe No. 199

## GREEN ON UNION CLOTH

Union Green 4419 J on 100 lbs. union cloth. Prepare the dye bath with

3 lbs. Union Green 4419 J.
(Cassella Color Co., 182 Front St., New York, N. Y.)
40 lbs. Glauber's Salt, Crystal.

Enter material at 120° to 140° F., raise bath gradually to a boil and dye at a temperature just below boil for ¾ hour. If wool is then insufficiently dyed, raise temperature to a boil and dye at a gentle boil for 15 to 20 minutes.

Union Green 4419 J will be found an excellent color for dyeing cotton and woolen, wool and silk, and in fact all union fabrics. It is an excellent color for garment dyeing.

Recipe No. 200

**BLACK ON WORSTED CLOTH WITH SILK ILLUMINATION**

Azo Chrome Black S W on worsted cloth. Prepare the dye bath with

6 lbs. Azo Chrome Black S W.
(Kalle Color and Chemical Co., 530 Canal St., New York, N. Y.)
8 lbs. Acetic Acid.

Enter at 140° F. and dye at a boil for an hour, then chrome in a fresh bath made up with

1½ lbs. Potassium Bichromate
10 lbs. Acetic Acid.

Boil ¾ of an hour.

Azo Chrome Black S W possesses good fastness and will leave silk illumination threads unstained.

Recipe No. 201

**GARNET ON WORSTED YARN**

Chrome Fast Garnet B L on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Chrome Fast Garnet B L.
(Berlin Aniline Works, 213 Water St., New York, N. Y.)
20 lbs. Glauber's Salt, Crystal.
1.5 lbs. Sulphuric Acid.

Enter at 140° to 160° F., raise to a boil during about ½ hour, continue the boiling for ½ hour and then, in order to better exhaust the bath, add a further

1.5 lbs. Sulphuric Acid.

After boiling ½ hour longer add

1.5 lbs. Potassium Bichromate

and continue the boiling for another half hour.

Chrome Fast Garnet B L possesses excellent fastness to light and weather.

Recipe No. 202

**BROWN ON COTTON YARN**

Kryogene Brown R B N X X on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Kryogene Brown R B N X X.
(Badische Co., 86 Federal St., Boston, Mass.)
3 lbs. Sodium Sulphide (Conc.)
3 lbs. Soda Ash.
60 lbs. Glauber's Salt, Crystal.

Dye at a temperature just below the boil for one hour, wring, expose to air a short time, rinse and dry.

Kryogene Brown R B N X X possesses good fastness to light and very good fastness to washing.

Recipe No. 203

**RED ON WORSTED YARN**

Salicine Red S D on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Salicine Red S D.
(Kalle Color and Chemical Co., 530 Canal St., New York, N. Y.)
10 lbs. Glauber's Salt, Crystal.
4 lbs. Acetic Acid.

Enter at 120° F., raise slowly to boil, boil ½ hour and add

2 lbs. Sulphuric Acid

and continue boiling ½ hour to exhaust bath. Finally cool bath to 160° F., add

1¼ lbs. Potassium Bichromate

and boil 40 minutes.

Salicine Red S D possesses excellent coloring power and good fastness.

Recipe No. 204

**GREEN ON COTTON YARN**

Diazo Fast Green G F on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Diazo Fast Green G F.
(The Bayer Co., 117 Hudson St., New York, N. Y.)
20 lbs. Common Salt.
2 lbs. Soda Ash.

Enter at 180° F. and dye at a boil for one hour, then rinse thoroughly and diazotise in a cold bath made up with

2½ lbs. Sodium Nitrate.
7½ lbs. Hydrochloric Acid (32° T)

working for 20 minutes, then rinse and develop by working for ½ hour in a cold bath made up with

1½ lbs. Developer Z

dissolved in water.

Diazo Fast Green G F possesses very good fastness to light and washing.

Recipe No. 205

**YELLOW ON UNION CLOTH (COTTON AND WORSTED)**

Union Yellow 83403 on 100 lbs. Union Cloth. Prepare the dye bath with

3 lbs. Union Yellow 83403.
(Cassella Color Co., 182 Front St., New York, N. Y.)
40 lbs. Glauber's Salt, Crystal.

Enter at 120° to 140° F., raise to a boil gradually and dye at a temperature just below boil for ¾ of an hour. If wool is then insufficiently dyed raise temperature to a boil and dye at a gentle boil for 15 to 20 minutes.

Union Yellow 83403 will be found an excellent color for dyeing cotton and woolen, wool and silk, and in fact all union fabrics. It is an excellent color for garment dyeing.

# *New Machinery and Processes*

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

---

**Narrow Fabric Measuring Machine.** Freeman Machine Co., Lawrence, Mass., is introducing a machine for measuring narrow fabrics, such as braids, tapes and ribbons. It can be used for skein, spool or roll winding and measure up to 288 yards by quarters.

**Shuttle and Shuttle Threader.** The Murphy-Simpson Threader Limited, England. An improved shuttle and a device for threading it, which obviates the necessity of sucking the yarn through the eye.

**Humidifying Apparatus.** Herbert Smethurst & Sons, Ltd., Hollinwood, near Manchester, England. An improved method of humidifying and disinfecting the air of work shops.

**Singeing Machine.** B. Szilard, Rue de Rochefoucauld, Paris. An attachment for singeing machines for yarn and cloth. It consists of a quartz or asbestos plate placed between the flame and the yarn or cloth, the object being to protect the latter from injury.

**Moistening Machine.** Herbert Smethurst & Sons, Ltd., Hollinwood, Eng. An improved atomizer for moistening the air in spinning rooms and weaving sheds.

**Cloth Grinding Machine.** Tomlinsons, Ltd., Rochdale, Eng. A machine for mercerizing or grinding cloth in the process of finishing.

**Card Punching Machine.** Liebscher & Son, Grosschoenau, Saxony. An improved jacquard card punching machine for endless paper cards.

**Stop Motion for Winders.** Saechsischen Webstuhlfabrik, Chemnitz, Germany. An improved stop motion for cop winding machines.

**Jointless Flooring.** Jarman & Co., York Lane, Belfast, Ireland. A composition called "Ernsilo" or magnesian cement, used as a substitute for wood flooring. It also contains wood fiber, marble dust, asbestos and granulated cork and has been used extensively for covering decks of vessels. It is recommended for mill and factory work, the claims being that it is much warmer than concrete to the feet of the operatives and does not dust up under truck traffic. It can be laid over old floors, preserving the latter from rot.

**Helical Gearing for Mill Driving.** The Citroen Gear Co., London, E. C., England, are placing on the market helical gears for driving woolen cards, wool combers and other textile machines.

**Machine for Pointing Bobbin Skewers.** Dronsfield Bros., Ltd., Atlas Works, Oldham, England, have recently introduced what is believed to be the first machine ever placed on the market for sharpening the points of bobbin skewers. A description appears in this issue.

**Dobby Lag Punching Machine.** Pennington & Thornton, Lancashire, Eng. A machine for punching at one operation all the pegs in one of the wooden lags used on a dobby motion.

**Let-Off Motion for Looms.** Lightowler & Keighley, Bradford, Eng. An improved friction device for warp beams in looms.

**Reed Hook.** H. Berry, Burnley, Eng., has placed on the market a reed hook which automatically selects the next dent to be entered, thus relieving the strain on the eyes of the drawer-in.

Recipe No. 200

**BLACK ON WORSTED CLOTH WITH SILK ILLUMINATION**

Azo Chrome Black S W on worsted cloth. Prepare the dye bath with

6 lbs. Azo Chrome Black S W.
(Kalle Color and Chemical Co., 530 Canal St., New York, N. Y.)
8 lbs. Acetic Acid.

Enter at 140° F. and dye at a boil for an hour, then chrome in a fresh bath made up with

1½ lbs. Potassium Bichromate
10 lbs. Acetic Acid.

Boil ¾ of an hour.

Azo Chrome Black S W possesses good fastness and will leave silk illumination threads unstained.

Recipe No. 201

**GARNET ON WORSTED YARN**

Chrome Fast Garnet B L on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Chrome Fast Garnet B L.
(Berlin Aniline Works, 213 Water St., New York, N. Y.)
20 lbs. Glauber's Salt, Crystal.
1.5 lbs. Sulphuric Acid.

Enter at 140° to 160° F., raise to a boil during about ½ hour, continue the boiling for ½ hour and then, in order to better exhaust the bath, add a further

1.5 lbs. Sulphuric Acid.

After boiling ½ hour longer add

1.5 lbs. Potassium Bichromate

and continue the boiling for another half hour.

Chrome Fast Garnet B L possesses excellent fastness to light and weather.

Recipe No. 202

**BROWN ON COTTON YARN**

Kryogene Brown R B N X X on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Kryogene Brown R B N X X.
(Badische Co., 86 Federal St., Boston, Mass.)
3 lbs. Sodium Sulphide (Conc.)
3 lbs. Soda Ash.
60 lbs. Glauber's Salt, Crystal.

Dye at a temperature just below the boil for one hour, wring, expose to air a short time, rinse and dry.

Kryogene Brown R B N X X possesses good fastness to light and very good fastness to washing.

Recipe No. 203

**RED ON WORSTED YARN**

Salicine Red S D on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Salicine Red S D.
(Kalle Color and Chemical Co., 530 Canal St., New York, N. Y.)
10 lbs. Glauber's Salt, Crystal.
4 lbs. Acetic Acid.

Enter at 120° F., raise slowly to boil, boil ½ hour and add

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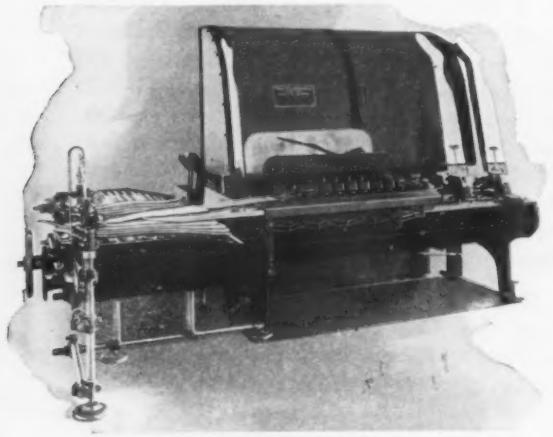
## THE PROCTOR AUTOMATIC BOARDING, DRYING AND STRIPPING MACHINE FOR HOSIERY

A machine that attracted much attention at the recent Philadelphia knit goods exhibition was the Proctor automatic boarding, drying and stripping machine, built by the Philadelphia Textile Machinery Co., Hancock and Somerset Sts., Philadelphia, Pa. This machine makes it possible for one man to board twice as many stockings as can be handled by the old method. Boarding



THE PROCTOR AUTOMATIC BOARDING, DRYING AND STRIPPING MACHINE

stockings by the old method requires fourteen operations, whereas the work can be done on the Proctor machine with only two operations, the machine doing the rest of the work. All the man has to do is to pick up the stocking and put it on the board. The machine takes the stocking to the dryer, it dries it, removes it from the dryer and from the board, piles and counts the stocking in dozens and then carries the empty board back to the man who puts another stocking on it.

The Proctor machine is equipped with eighteen aluminum boards. Four boards are outside the dryer and fourteen are inside. These forms are carried in a vertical position by a conveyor and are moving continuously. The man places the stockings on the boards as they move past him. The boards are in a vertical position when they pass the man and while the stockings are being dried, but as they come out of the dryer they are changed gradually to a horizontal position. It is at this point that flexible fingers grasp the toe and heel of the stocking, and the board is withdrawn and the stocking laid on a pile on a walking beam table. When twelve stockings are on a pile the walking beam table moves all of the stockings forward far enough to permit another pile to be formed. The machine never fails to count and pile in dozen lots, the stockings which have been dried. The machine then takes the board back to the operator and puts it in a vertical position so that he can put a stocking on it again. The operator's entire attention can be given to the actual boarding of the hosiery. As a result half of the time ordinarily required is saved. A stop watch test shows that half of the operator's time by the old method is taken up by operations which are eliminated by the Proctor machine.

## THE "BOUND BROOK" AND "NIGRUM" OILLESS BEARINGS

Over a quarter of a century ago graphite lined bearings were first introduced and at the present time their value in power transmission is attested by their extensive use in industries of all kinds. Among the first to manufacture these oilless bearings was the Graphite Lubricating Co., Bound Brook, N. J., who started business in 1883 on the second floor of a small frame building, while today they operate an extensive plant of which the floor space is measured by the acre. Their success has been due to keeping their products at the highest possible standard, in order that the "Bound Brook" oilless bearing may prove to be in practice a bearing that requires no oil for its lubrication. The "Bound Brook" bearing is made of the finest bronze obtainable, and the recesses are filled with the best lubricating graphite. The graphite and bronze surfaces are flush, they wear evenly and require no refilling or attention; the bearing lasts as long or longer than any perfectly oiled bearing. The result is a reduction in friction, saving of oil and labor, dispensing with the necessity for con-

stant attention and freedom from danger of hot or damaged bearings.

The use of a "Bound Brook" graphite and bronze oilless bearing is really a case of insurance. There are so many instances where the oiling of the bearings are neglected, causing them to become cut, necessitating the stopping of the machinery to make repairs, and the attendant evil of loss of valuable time and production, which certainly is a heavy item in the overhead expenses of a factory.

THE "BOUND BROOK" OILLESS BEARINGS

This is particularly true of the loose pulley bearings, friction clutch bearings and hanger bearings, as well as main shaft bearings, for the simple reason that if one of these bearings becomes stuck or badly cut on account of neglect of lubrication, it means a loss of valuable time in repairs and a curtailing of production.

There are so many places where oil is objectionable in a textile mill on account of the dripping of the oil and soiling of valuable material and increasing fire risks as well as increasing insurance rates that the bearings are of particular interest and value to the manufacturer. There is a decided difference between a so-called "graphite lined" bushing and a "Bound Brook" bushing. The former may be anything of which a composition can be made that shows a large percentage of carbon as does graphite. Bituminous coal will undoubtedly show the same ratio of carbon, but it does not mean that bituminous or anthracite coal or coke make good lubricants.

In order to get the best results in a graphite-lined bushing it is necessary to use the particular grade of graphite especially adapted for lubricating purposes. The Graphite Lubricating Co. have learned by long experience just what kind of graphite to use for their bearings. The Graphite Lubricating Co. also manufacture what is known as the "Nigrum" bearings which are especially adapted for places where dust and grit are liable to accumulate and follow the oil. Such conditions are found in the ordinary tool grinder where the emery and wheels are in constant operation. A piece of

steel or iron being placed against the wheel, particles of steel or emery are constantly being thrown off, and they immediately accumulate around the oil holes, and are, therefore, fed with the oil to the bearings.

Considering the fact that the shaft is a piece of hard steel, and that ordinary bearings consist of bronze or babbitt, that with this feeding of particles of steel or emery to

THE "NIGRUM" SADDLE

this hard surface, it is evident that something must cut and give away. It must be either the bearing or the shaft, therefore frequent repairs are necessary. These difficulties are overcome by the use of the "Nigrum" bearing in which the wood is softer than the shafting. As a result the hard particles that would ordinarily be drawn into the bearings are imbedded in the bushing or bearing by the friction of the shafting and the lubrication goes on without interruption. The "Nigrum" bearings are especially adapted to grinding mills and grinding machinery. They have been found very valuable on spinning frames for which the "Nigrum" saddle, shown in the illustration, has been designed. This saddle requires no lubrication by oil or grease. It dispenses with the old iron saddle and the greasy wick which works on the rolls and attracts dust and dirt.

## DRONSFIELD'S PATENT SKEWER POINTER

The illustration, Fig. 1, shows an improved machine for pointing skewers for sliver bobbins built by Dronsfield Bros., Ltd., Oldham, England. Fig. 2 shows the points of three skewers before sharpening

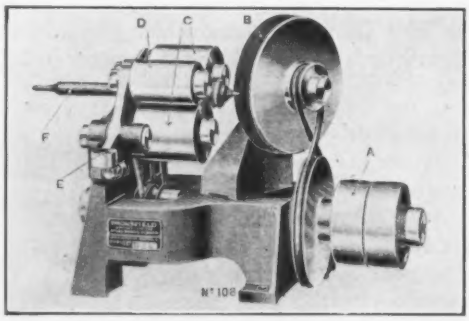



FIG. 1. THE PATENT SKEWER POINTER

and Fig. 3 shows the points of the same skewers after sharpening. This is believed to be the first machine of its kind to be placed on the market and has proved its value in English mills by reducing the skewer bill on the one hand and improving the spinning of the cotton on the other. Much damage is caused by broken ends and blunt points which stick to the creel steps and cause jerky and irregular rotation of the bobbins. This defect causes elongation of the sliver and consequently thick and thin places in the yarn. The machine is self-centering so that the point is ground concentric with the body of the bobbin, giving a perfect balance and easy rotation. It may be obtained through their American agents.

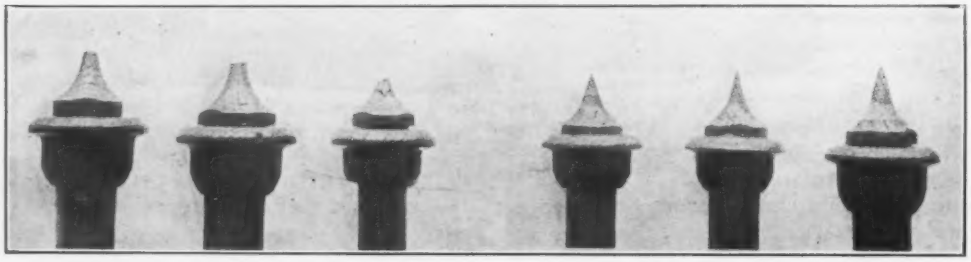
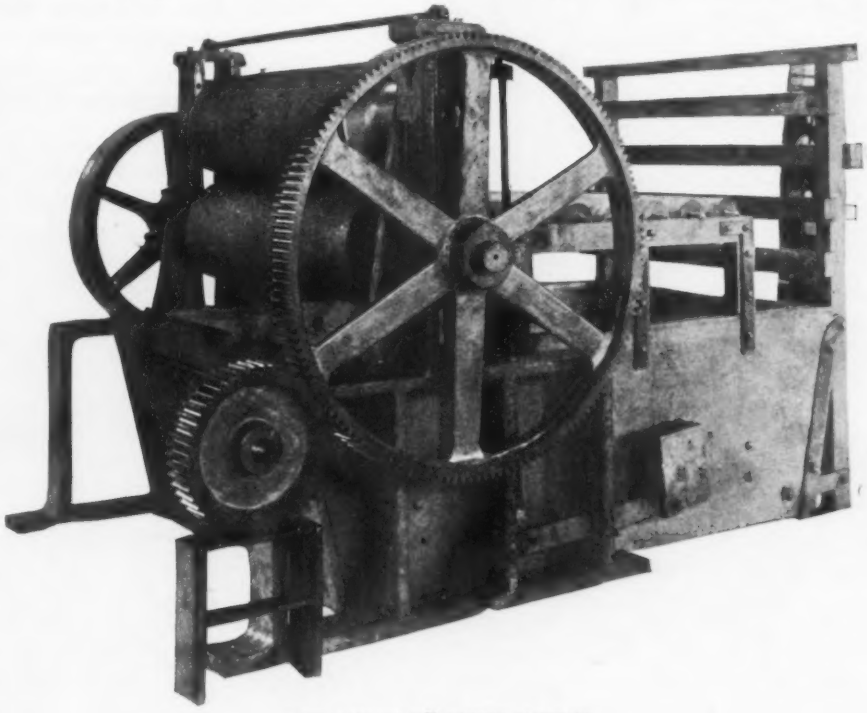


FIG. 2 FIG 3

SKEWERS BEFORE AND AFTER SHARPENING

## THE "RELIANCE" DYEING MACHINE

The machines built by the Reliance Machine Works, Hedge and Plum Sts., Frankford, Philadelphia, Pa., for dyeing warps and piece goods, have for many years been in operation in the leading mills of the country, and are recognized as among the best warp and piece dyeing appliances on the market. The extensive use of khaki goods for military purposes created a demand for a machine specially adapted for dyeing this line of work, and to meet it the Reliance Machine Works designed the machine shown in the accompanying illustration. It is built with a cedar tank, cast-iron housings, two-squeeze rolls, one made of gum and the other husk, cut gearing and maple or brass carrier rolls. The machine is driven either by belt and pulleys, or by direct-connected motor. It is of simple and substantial construction, giving great durability and ease of operation.



THE "RELIANCE" DYEING MACHINE

In addition to this special khaki dyeing machine, the Reliance Machine Works build their regular line of machinery for warp dyeing and sizing, bleaching, piece goods dyeing, cloth shrinking and pressing of hosiery and underwear. They invite correspondence and will be pleased to supply any information desired regarding their products.

## HYDRO-EXTRACTORS

The words "hydro-extractors" and "centrifugal machines" are sometimes loosely used as meaning the same thing, but they are two distinct classes of machines, and while essentially of similar construction, differ in the construction of the basket. Machines which are used for removing water from textile materials are "hydro-extractors" and the machines suitable for separation of liquids of different specific gravities and removing liquids from granular substances are known as "centrifugal machines."

These latter machines are extensively used to remove the mother liquor from crystaline substances such as sugar, salt, soda and many others of like nature. In the case of

drying granular substances, it will be readily seen that very fine particles would pass through the perforations and some more efficient means must be provided to retain them. Therefore all centrifugal machines as distinguished from hydro-extractors are fitted with a set of fine wire gauze or finely perforated copper or other metal linings or sieve to retain all the grains or crystals of the material treated. A further difference between the centrifugal and hydro-extractor is that the latter for textile goods is filled and emptied by hand by lifting the cloth or wool, etc., over the lip of its basket, whereas in the centrifugal there is an opening in the center of the basket bottom covered by a valve which can be lifted upwards to uncover the opening, and the dried material is scooped by hand through this opening. In hydro-extractors for textile work the basket is usually made either of galvanized steel or copper. The latter is not necessary unless there is some acid used in treatment of goods to be dried or the goods are of an especially delicate nature either as to texture or the nature of the dyes used in coloring. Both suspended and pivot machines are used to treat textile materials.

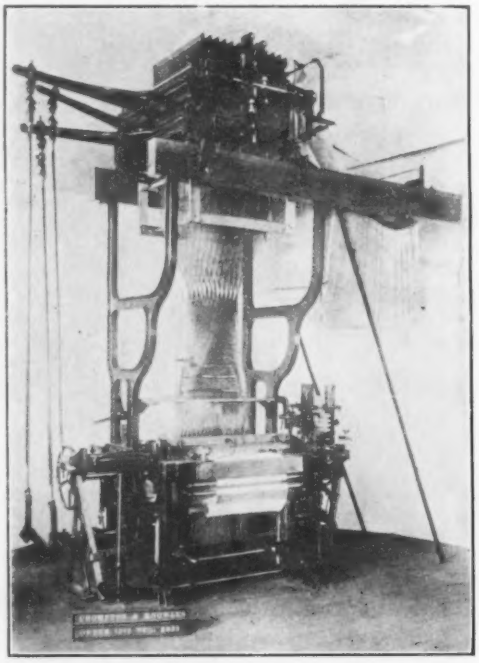
Messrs. Watson, Laidlaw Co., Ltd., of Glasgow, who have been manufacturing hydro-extractors and centrifugal apparatus for all purposes since 1870, make all the various types of machines, and generally speaking, state that the pivot machines are used where smaller machines are required and the suspended where larger machines are needed. The larger sizes of pivot machines have a greater capacity than the smaller sizes of the suspended machines, so that in some cases where only size is under consideration, either type may serve; the pivot machine, size for size, is lower in price than the suspended machine. The suspended type is, however, stronger than the pivot and when clients are prepared to pay the higher price they advise the suspended type. A suspended machine of the same diameter as a pivot has a much greater capacity. Another method is driving by independent engine, which gives very good satisfaction. Electric motors are used both direct connected to the centrifugal spindle and also by means of belting from the motor.

The latest and what they recommend as the best method of drive where moisture predominates, as is usual in dye houses, is the water drive. This consists of a Pelton wheel on the spindle of the machine and allows the extractor to be put in any location desired. The sizes of these machines vary from the four inch diameter basket used for laboratory and driven by hand to the monster 84 inch diameter direct connected electrically-driven machine used for drying carpets which weigh over one ton when wet.

W. J. Wayte, Inc., 1 Liberty St., New York City, is their American agent.

## A CROMPTON TOWEL LOOM FOR OKLAHOMA

The illustration shows a Crompton jacquard, 2 by 1 box, automatic towel loom



A CROMPTON TOWEL LOOM

which has been shipped to Muskogee, Okla. This loom is to be exhibited in the Southern Commercial Congress Exposition which

opens there on April 22d. William Gihon, of Muskogee, Okla., who ordered this loom, has been in the North for several weeks. He is interested in the development of textiles in the Southwest, and hopes that this loom will attract so much interest at the Exposition that it will be the means of starting several fancy cotton mills in the Southwest for weaving towels, quilts, denims, ginghams and other fabrics. Mr. Gihon is strongly of the opinion that the great Southwest should manufacture the cotton textiles which it consumes, and he feels that this loom will show these people who attend the Exposition the possibilities in this line.

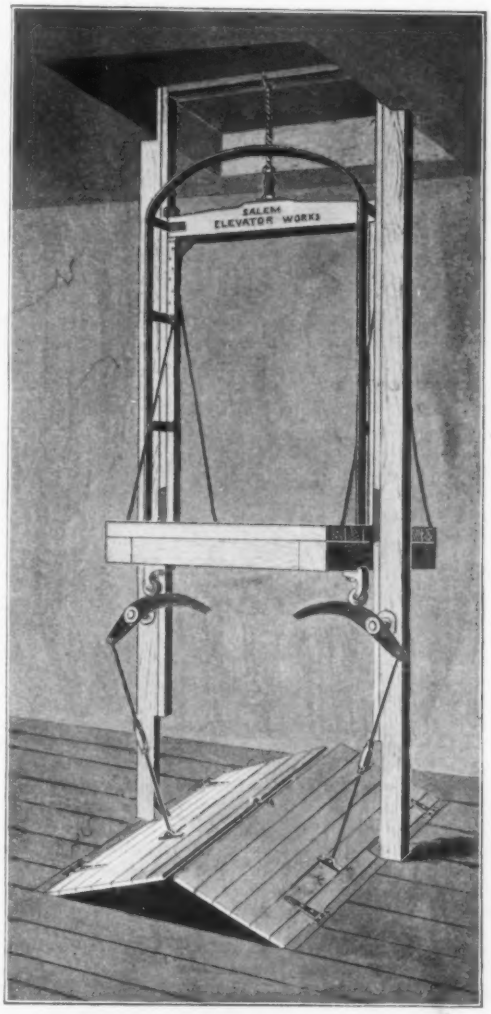
## AUTOMATIC HATCH DOORS FOR ELEVATORS

The ever increasing demand for more safeguards and the requirements of insurance companies have caused builders of elevators to perfect appliances that will meet the demands of the "Safety First" movement. The Salem Elevator Works, Salem, Mass., have perfected automatic folding hatch doors until they consider that the type shown in the illustration affords the most perfect protection for hatchways that has yet been devised.

These hatch doors greatly diminish the risk of fire spreading through various floors of a building and also prevent drafts from one floor to another. The operation is perfectly automatic, the crank lever opening the door as the car descends and the top bow opening the door as the car ascends. The cranks are adjustable, allowing for the settling of floors, shrinkage or wear, and the doors fold out of place in recesses against the guide posts. They build the doors of seasoned Southern hard pine, which they find the best of any wood obtainable. They are well fastened by substantial battens strongly screwed on. These doors are often tinned on underside and edges to further meet with insurance requirements. These hatch doors may be installed in connection with elevators already in operation.

Other safety appliances include semi-automatic elevator gates, either self-locking or non-locking. They make gates and guards in all forms to meet varying conditions.

Their safety-lock is an appliance which makes it possible for an inexperienced person to operate the elevator with safety. The use of this lock prevents many accidents; it locks and stops the car on a level with the floor, whereas without the lock several attempts have usually to be made before the car can be brought approximately level with the floor and these sudden startings and stoppings to get the required level are a wear on the working machinery. The Salem Elevator Works specializes in freight elevators for factories and mills.




AUTOMATIC HATCH DOORS FOR ELEVATORS

## *Meeting of the National Association of Cotton Manufacturers*

(Continued from page 153)

### USES FOR CONCRETE CONSTRUCTION BY COTTON MANUFACTURERS

By LEONARD C. WASON, C. E., President, Aberthaw Construction Company, 8 Beacon St., Boston, Mass.

The first use which comes to mind is the larger buildings of a manufacturing plant. One advantage of reinforced concrete in the construction of the principal mills is that small wall columns can be used, permitting very large window areas, so that light is uniformly distributed throughout the length and width of the rooms. The usual design today is the girderless floor, which gives a flat ceiling so that there is no obstruction to light,

LEONARD C. WASON

and the wall beams are above the floor line instead of below. This permits the window frames to reach the ceiling, so that the glass may be within an inch and a half of the ceiling level. The wall beam forms in part the curtain wall between the floor line and the window-sill. As daylight is cheaper than artificial light, and as metal frame windows with wire glass are as cheap as masonry curtain walls, there is a saving in first cost of construction, and a saving in operation, due to the illumination. While there is more radiation of heat from the glass area, there is less leakage, due to the tightness of the metal sash, and probably not much difference in cost of heating the building.

In buildings where there is reciprocating machinery, like looms, all working together, and whose moving parts have a uniform speed, there is a large advantage in concrete, because the greater solidity and rigidity of this floor over that of any other type absorbs this vibration in the same way that a heavy foundation absorbs that of a horizontal reciprocating engine. Aside from freedom from damage to the building by this vibration, are the stability and free running qualities of the machines themselves. This adds to their life and reduces the possibility of breaking the threads, which affects the cost of operating and the quality of the product. It has been found by some manufacturers that looms can be run 15 per cent. faster on a solid concrete floor than on a wooden floor subject to vibration. It has also been found that, due to the rigidity of the floor, there is a distinct saving in power.

This makes concrete very advantageous for the weave sheds, and the construction of a concrete sawtooth roof, when properly studied out, is not much more expensive than one of wood, while it has advantages over wood besides that of fireproofness. The additional material necessary in building a floor for a heavy load, over the minimum which must be used in even a light floor, is relatively small; so that floors carrying heavy loads, as in a storehouse, are cheaply obtained. It is also an easy matter to render the floors and walls so dense, by the proper proportioning and placing of the concrete, as to be waterproof. This makes the material admirably adapted for use in such wet places as dyehouses, where water and steam are freely used. It is an easy matter and relatively inexpensive to make the floors watertight and to pitch them to drains, so that water can quickly be removed from their surface and the floor below guaranteed against damage from leakage.

Concrete is, however, a better conductor of heat than wood, so that for external walls or roof of a dye-house it is desirable to have a dead air space or some other form of non-conductor to prevent condensation. To prevent condensation on windows, it is desirable to have a double-glazed sash and sometimes a triple thickness. But the design of the sash or frames should permit the separation of the sash for cleaning the glass, as it has been found impossible to fit these so tightly together as to prevent ultimate clouding of the glass in the space.

#### SURFACE TREATMENT OF CONCRETE

Attention should be given to the treatment of exterior surfaces. The simplest and cheapest treatment is to rub the surface, soon after the forms are removed, with a coarse carborundum stone, cement, fine sand and water. This fills up the voids, if any, and removes fins, giving a uniform texture but not necessarily a color. On the final cleaning down of the building, rubbing with carborundum and water gives a uniform color, that of the cement, and therefore permanent. This a clear gray and of itself is not very pleasing.

A tint can be obtained by the addition of coloring matter which has a strong contrast with the cement itself, preferably a lamp black or deep red in small quantities, and with colored sand. A warm pleasing tint, such as is found in Indiana limestone, can be obtained without very much ex-

pense. A color contrast by the use of red brick for curtain walls and for corner piers makes a very attractive building.

Concrete can be tooled in various ways, as is the natural stone, so as to expose the coarser aggregate of which the concrete is made; and some types of mouldings can be made without serious increment of expense. The cost of ornamentation comes chiefly in the form work. Because the material is plastic, it is easy to fill forms, whether they be plain or ornamental. A mill built several years ago in an adjoining city had a very ornamental front, with ornaments cast in individual moulds, and set, as natural stone would be, around the main entrance and in the cornice above. The difference in cost between this design and the conventional mill construction was less than 2 per cent. of the total cost of the mill.

Big block stone is seldom if ever used today for foundations. Concrete, being strong and improving in strength in moist places instead of deteriorating, has become practically universal. Where the ground is firm, the problem is simple. Where the ground is of moderate bearing capacity, it is very easy, by reinforcing, to spread the load over a wide area, with an increase in depth of not over one-third the spread, thus materially saving in excavation. The same is possible with interior piers, by reinforcing the footings in two or more directions. Where the ground is too soft to carry this load, but for a short time will hold its position without slumping, a special form of pier can be used conveniently. A cylinder of thin sheet metal is sunk, the material excavated inside it, and when the solid bearing stratum is reached, the soil is scooped out horizontally so as to increase materially the bearing area. The chamber thus formed is immediately filled with concrete.

In a soil which would not stand more than a half hour by itself, it is possible to increase the bearing area on the ground sufficiently to develop the full strength of the concrete pier. This method may be used for piers 15 inches and upwards in diameter and of lengths up to 20 feet. Concrete piles of various types have been used to good advantage. Some are cast in place, having first driven a shaft to make a hole in the earth, and then used the earth as a form. Again, a steel core is driven with a thin sheet metal covering which is left in place and filled with concrete. Some concrete piles are cast on the surface of the ground, permitted to harden, and then driven like a wooden pile.

The carrying capacity of a concrete pile is equal to three wooden piles. Where the ground water level is low, which would require cutting off wooden piles at a considerable depth below the surface of the ground, capping them and building a pier above, concrete piles can be used to good advantage and with economy, because they are brought to the underside of the cellar floor. They thus save in the excavation and masonry necessary to cap the wooden pile.

If it is desirable to add to the height of a building, and the foundations are inadequate to carry the additional load, they can without much difficulty be underpinned in sections with reinforced concrete. In this way a broad spread can be made as previously described, and with very little excavation. When a short section has sufficiently set, an adjoining section can be opened out and the process repeated, until the whole building is reinforced, when the additional load can be placed upon it.

It is possible also to place concrete safely under water, even at a great depth, if proper precautions are taken and the water is kept still until the cement sets.

The use of concrete for roofs has simplified the waterproofing problem. Instead of using 5-ply roofing paper, 3-ply will be found ample. The saving from this source often exceeds 2 cents per square foot, or $600 on a mill 75 by 400 feet. The two extra plies used on a wood roof are needed to make a smooth surface, but the concrete roof is already smooth.

For a picker room, concrete is especially well adapted. It not only makes a room which is fireproof in itself; but it forms a tight surface, through which lint cannot be blown by the pressure of the fans. The contrast in this respect with a wood floor is very marked, as those who have been annoyed by lint hanging down from the ceiling of the room below the picker room can well testify.

Some of the minor uses for concrete in the cotton industry are for tanks for holding clear water or liquors of various kinds. It it an easy matter to make a tank of the size which is used in wood, and guarantee it water tight in concrete. But it is necessary to use great care in proportioning the sand, stone and cement to get the maximum density, to use the right proportion of water, and carefully to mix and place the materials. Then the concrete is really water tight.

For tanks to hold chemicals or dye stuffs, the user must consider whether or not these chemicals will attack the tank itself. As the base of Portland cement is lime, acid will attack it. If the concrete is porous, and the tanks are alternately emptied and filled, even alkalies will destroy it, due to the crystallization of the alkalies within the pores, which mechanically disintegrates the concrete. Such cases have come within the writer's personal experience. When a tank is new there is a little free lime on the inside surface, which may temporarily affect the solution in the tank, because of the solubility of this lime, but this will disappear after some weeks of service. This must be kept in mind if the nature of the solution is such as to be injured by lime.

Other uses are for filter beds in the filtering of water for manufacturing purposes, and for reservoirs for the storage of water for fire and other uses. Standpipes, due to their size, are very difficult to make absolutely tight in reinforced concrete. To accomplish this result, an impervious lining of some kind must be used.

Another use to which concrete has been put to a limited extent is for cloth pits in bleacheries. Here the result to be obtained is a surface so smooth that no injury will be caused to the most delicate fabrics, and yet so hard that no particle whatsoever will rub off and be mixed with the fabric, which later has to go through other

processes, such as dyeing or printing. This type of pit requires special construction to obtain these results. In a recent plant of large size, a number of pits of this type were used, even at considerable increase in cost over wood. Except where heavy acid is used, these pits have proved very satisfactory. Cement walls cannot be satisfactorily acid-proofed.

The subject of design will be briefly covered, and that in a non-technical way. So many tests have been made of beams and girders in laboratory test specimens and in actual work that the theory and practice of design have been thoroughly established and engineers can guarantee results without hesitation. Floors can be built with either beams and girders, beams close together or far apart, as in wood mill design; as well as in the distinctive concrete methods of wide beams with a small panel between, and the straight mushroom or girderless design.

An economical span for ordinary loads as found in the textile industry is from 18 to 22 feet in each direction, making approximately square bays. However, the spacing of columns can be made anything which the conditions demand, from very close together up to very long spans. The longest span ever called to the writer's attention was 106 feet, and this was a roof with 15-foot galleries suspended from it along each side. The longest span built by the writer is 80 feet. From 30 to 50 feet is relatively common, although not as economical as the first named standards.

The loads which can be carried vary from a light load of 25 pounds for a roof, to a ton to the square foot. Columns can be made plain or reinforced. If the building is high and the loads heavy, to save room it is often desirable to carry the load on a structural steel core which is fireproofed with concrete. For buildings up to four stories, reinforced concrete columns will be found the cheapest; and the size is not objectionable in the lower stories unless the loads are exceedingly heavy. For six stories and more, if the lower story columns are too large, structural steel may be substituted. It is not necessary to use any horizontal structural steel members, as the floors will be supported without difficulty from shelf angles riveted to the steel members. Brackets for crane girders can be easily cast with the concrete columns, where necessary.

An important detail of construction is the floor finish. The cheapest finish is granolithic—a mixture of tough crushed stone and cement, laid either as an integral part of the floor construction or as a second coat following. There are reasons for both types of construction, and the arguments for and against are too long for the limits of this paper. Another very general type is wood. There are various methods of laying this. The first one is to embed sleepers in the cinder concrete fill, to which a single floor is nailed, and sometimes a double floor. Sometimes a plank underfloor is laid, either loose or mopped down with asphalt, on which a finished floor is laid. Another method is the layng of a porous concrete containing cement, sand and asbestos, to which the floor is nailed direct, the nails holding well in the lower coating. The merits and demerits of the different methods are matters of argument.

On top of a concrete floor, the wood can be laid in whatever direction is desired, whereas on wooden frame floor it can be laid only in one direction, which is determined by the framing. The most serious of the objections which have been found with wooden floors laid solid is that they swell and buckle. Sometimes they have risen 30 inches from place. To overcome this, sometimes bolts are embedded in the concrete construction at sufficient intervals to hold the underfloor rigidly in place, and sometimes slots are left to relieve the swelling. It has been found that underfloors embedded solidly in asphalt rot out in a relatively short time.

The most frequent objection to the granolithic floor comes from the operatives, who claim that the floor is hard on their feet and lames them. An extensive study by the writer some years ago led to the conclusion that the trouble was solely with the fact that granolithic is a better conductor of heat than wood. Operatives wearing thin shoes complained when their feet became cold, and when standing in one place the circulation was impaired and their legs became tired or lame. By the use of heavy shoes, or by standing on a wooden grating, this difficulty is overcome. Complaints are not received from operatives who move about freely in the performance of their work. The advantages of a clean, smooth floor, low in cost and cheap in maintenance, can thus be had without any objection from operatives.

It is an easy matter either to embed inserts in the floor for the attachment of shafting, piping, etc., in a pre-arranged method, or to insert these so that timbers can be bolted to them and allow an elastic method of attachment. Again it is fairly simple to drill holes for the insertion of expansion bolts, where no previous provision has been made. The cost of setting these inserts varies with their style, but for material and labor may be said to run between 5 and 10 cents each. They can be attached as readily to corrugated iron, which is today very extensively used for form work, as to the wooden panels which were used most extensively some years back. Corrugated iron is much cheaper to use for form work than wood panels, and the writer thinks it makes a much better looking ceiling.

Window frames for large areas are made largely of rolled steel sections, sometimes of a single piece and sometimes built up. Both types have their advocates and their individual merits. Actual fire tests have shown that while rolled steel shapes are not as fire resisting as sheet metal formed into a box, yet it is an excellent fire resistant, and unless the fire hazard from an outside exposure is very bad, are good enough. Wire glass is advisable if there is any risk from spreading of fire from story to story, or if there is exposure from without.

Concrete stairs have long since replaced iron, or the combination of iron and stone treads, because they are lower in first cost, non-slipping, and better protection against fire. If desired, safety treads of various types can be permanently attached to the treads, to reduce still further the possibility of slipping.

A few of the properties of the material may well be kept in mind in connection with the designing.

Steel embedded in concrete is prevented from rusting if the cement is in hard contact with the steel, even though the combination be permanently in a wet place. Cement increases in strength with age. Tests have been carried to seventeen years, which show a measurable increment each year. Concrete setting in air shrinks somewhat, and subsequent expansion due to heat never overcomes the original shrinkage due to setting. Therefore cracks open and remain open, and we shall speak of these as contraction, not as expansion cracks.

By reference to the great conflagrations which have taken place, it will be seen that if concrete is properly made it is one of the best fire resistants which we have. As a resistant to heat, the material of the aggregate is important. The stone should be as near fireproof as possible. A trap is very much better than granite. Doubtless you all know how well a concrete mill store-house withstood the great Salem conflagration, and the experiences of the recent great fire in the Edison plant are fresh in your minds. This latter developed, we think, the greatest heat in which concrete buildings have ever been subjected, with the greatest apparent injury to them; but it has been found that they could be restored to their original condition for about 13 per cent. of their first cost.

To show briefly the intricacy to which it is necessary to go to get economical results, the writer might mention that a good builder in reinforced concrete today, after long study, has settled upon a type of form which long experience has shown the men can build quickly and economically. Plans of the forms are made to fit the particular building with as much precision as structural steel is laid out in a bridge shop. Panels for columns and beams are drawn out, showing the number, width of boards, the number of cleats, the position, and even the size and number of nails. The first use is located and their second use, when taken down, is planned from place to place through the building, until finally it reaches the storage pile for removal from the site of the finished structure. From these plans the bill of material is scheduled, and when received the material is put in piles pre-arranged, and shown on a ground plan of the lot.

A routing department is established and the materials are moved by written orders and taken to saw mill, where they are cut according to written instructions and moved to benches. Here they are made up from blueprints and are from there taken by instructions to the building, where the experienced carpenter foreman, who is now given freedom to do only that for which he is specially trained, namely, directing his men, sees that the men assemble the work in place with the fewest possible motions and least effort. This seems and is elaborate, but the results are what count.

Although lumber has doubled in price in the last fifteen years, the cost of lumber per square foot of floors has not increased; and although labor has practically doubled in price in fifteen years, the cost per square foot of floors, including all the overhead of making plans, running a routing department, etc., is less than half of what it used to be. This applies as well to reinforcing metal as to forms, and somewhat to the placing of concrete. The greatest savings are obtained where the men work in small units, in pairs, as do carpenters, rather than in the large units necessary in the mixing and placing of concrete.

It has been supposed that the laying of brick has been so well established that few if any savings could be made upon it. But a study of methods during the past year or two, and applying the principles of scientific management and somewhat the task and bonus, the cost of brickwork has been reduced several dollars per thousand without the slightest sacrifice in quality. This gives the very great advantage of planning the work to be done at a certain speed and place, and enables all the other trades and sub-contractors to co-ordinate their work to a definite schedule, thus saving in time and expense.

Assume the very common case where a manufacturer delays an increase until the last moment, then wants his mill in the shortest possible time. Frequently orders for a mill are placed before a single plan is made for the building. In a week's time mechanical plant is collected, the general plans of the building laid out, the details of the footings and foundations completed, the general method of operation studied out, and a time study of operations made as far as the sweeping out of the finished building. Material is scheduled, and ordered to be delivered in a pre-arranged order and at times as wanted, and in a week from receipt of order the organization starts on the ground.

In general, a four-story mill requires from three to four weeks for foundation work, the frame will be erected at the rate of a story a week, and in from four to six weeks from the casting of the roof the job will be finished and delivered. Thus the whole undertaking can be put through economically in four months as a general average. If greater speed is required it can be made at the sacrifice of economy. Within a few months the writer has erected one four-story and basement mill for occupancy in sixty-two days, and another, under more trying circumstances in mid-winter, in seventy-seven days. The ground area of the building has little influence on the time of construction. This is governed by the height, as one operaton must follow another in height; while on plan it is a question of one mixing plant or two or more, and of the number of men to operate them properly.

Lastly, in regard to relative cost of a reinforced concrete fireproof mill and one with brick walls and wooden floors, the former used to cost about 15 per cent. more on the average. As improved methods have been developed in the handling of men and materials on reinforced concrete, the prices have more nearly approached one another. In a number of cases they meet, and in a few cases the reinforced concrete building is cheaper in first cost, in addition to the other advantages above enumerated. The destruction of our forests of southern pine of large dimension, making this material more scarce and of inferior quality, has been a marked element in the change.

Perhaps the most important reason why manufacturers are building of fireproof construction today is to insure a continuity of their market. If, as many do, they sell under a special trade mark, and this is off the market for a number of months, it is difficult to recover the lost ground. The building and contents may be insured; the market cannot.

# Personals

W. H. Shepherd has been appointed manager of the New Castle Knitting Mills, New Castle, Pa.

Harry Davis has been promoted from assistant superintendent to superintendent at the Bigelow Hartford Carpet Co., Lowell, Mass.

Joseph Fleming has accepted the position as overseer of dyeing for Stephen, Sanford & Sons, Amsterdam, N. Y. He was formerly employed at the Bigelow Hartford Carpet Co., Lowell, Mass.

John G. Kelly, superintendent of the Bates Manufacturing Co., Lewiston, Me., for a number of years has severed his connection with that company. He is succeeded by James H. Barlow.

Richard Ulich, overseer of carding at the Geo. H. Gilbert Manufacturing Co., Gilbertville, Mass., has succeeded Frank Simes as overseer of carding at the Springville Mill, Hockanum Co., Rockville, Conn. Mr. Simes has been put in charge of the picking department.

James Dinnegan has accepted a position as overseer of finishing at the Akela Mill, Pascoag, R. I. He was formerly employed in the dry finishing department at the Peace Dale Manufacturing Co., Peace Dale, R. I.

George A. Hayes has been appointed overseer of bleaching, dyeing and finishing at the Phenix Lace Mill, Phenix, R. I. He will succeed his father, Joseph A. Hayes.

C. F. Musgrave has accepted the position as overseer of the mule spinning department at the Totokett Manufacturing Co., Versailles, Conn. He comes from Adams, Mass.

Martin Schoonman has accepted the position as overseer of twisting at the Ballou Yarn Co., Providence, R. I. He comes from New London, Conn.

David T. Black has been appointed designer at the A. D. Gleason Woolen Mill, Gleasondale, Mass.

William True has accepted a position as master mechanic at the Stillwater Worsted Co., Harrisville, R. I. He comes from Leominster, Mass.

George W. Davis has accepted a position as overseer of dyeing at the Holden, Leonard Co., Bennington, Vt. He was formerly employed at the Strathmore Worsted Co., Concord Junction, Mass.

M. J. Pierce has been appointed superintendent of the Rock River Woolen Mill, Janesville, Wis. He was formerly employed at the Bay State Mill, Lowell, Mass.

William Barnes, for the past ten years in charge of the bleaching department at the Dominion Textile Co., Montreal, Canada, has resigned his position with that company to accept a position in charge of back filling and sheeting department at the Wabasso Cotton Co., Ltd., Three Rivers, P. Q., Canada.

William E. Rowlandson, overseer of dyeing at the Holden, Leonard Co., Bennington, Vt., has resigned his position with that company.

Arthur Gobeille has accepted the position of assistant chemist at the River Spinning Co., Woonsocket, R. I.

J. E. Field has accepted the position of overseer of carding at the Anniston Manufacturing Co., Anniston, Ala. He was formerly employed at the Highland City Mill, Talladega, Ala.

Joseph Shaw has been promoted to superintendent at the Enoree Manufacturing Co., Enoree, S. C.

R. P. Sweeney, superintendent of the Fairmont Manufacturing Co., Fairmont, S. C., has resigned to accept a similar position with the Social Circle Cotton Mills, Social Circle, Ga.

L. C. Lowell has accepted the position of assistant superintendent at the Dillon Mills, Dillon, S. C. He was formerly employed at the Marlboro Mill No. 3, McColl, S. C.

T. H. Henderson, superintendent of the Lynchburg Cotton Mills, Lynchburg, Va., has resigned his position with that company.

W. Hayden has accepted a position as overseer of weaving at the Ware Shoals Manufacturing Co., Ware Shoals, S. C.

J. M. Jordan has accepted a position as overseer of spinning and spooling at the Elberton Manufacturing Co., Elberton, Ga.

B. L. Doby has accepted the position of assistant superintendent at the Jennings Cotton Mills, Lumberton, N. C.

David R. Malcolm, for the past forty-five years actively engaged in the jute industry as general manager of the Allentown Spinning Co., Allentown, Pa., has resigned his position with that company to become chairman of the Board of Directors and consulting expert of the Barbour thread and linen interests in America.

E. V. Boli has been appointed superintendent of the Mercury Mill, Ltd., Hamilton, Ont., Canada. He was formerly employed at the Mohawk Mill operated by the Wright's Health Underwear Co., Cohoes, N. Y.

John H. Gormley, Jr., who has been acting as superintendent of the Akela Mill, Pascoag, R. I., has severed his connection with that mill.

Joseph A. Hayes, for the past three years in charge of the bleaching, dyeing and finishing at the Phenix Lace Mill, Phenix, R. I., has resigned his position with that company.

Thomas F. Crocker has accepted a position as overseer of carding for W. S. Cordingley & Son, Newton Lower Falls, Mass.

William F. Keating has accepted a position in charge of the shears at the Ardmore Mill, Yantic, Conn. He comes from Franklin, N. H.

T. E. McCarthy has accepted a position as overseer of finishing at the Ardmore Mill, Yantic, Conn., to succeed George E. Bidwell.

Herbert E. Demuth has accepted the position of overseer of dyeing at the Dumbarton Woolen Mill, Dexter, Me. He was formerly employed at the Worumbo Manufacturing Co., Lisbon Falls, Me., as second hand.

John H. Hall has accepted the position as overseer of carding on the night shift at the Adams Woolen Co., Adams, Mass. He was formerly employed at Camden, Me.

William Quinton, for the past two years overseer of weaving at the Pontiac Mill, Pontiac, R. I., has resigned his position with that company to accept a similar position with the Linwood Mill, Whitinsville, Mass.

R. D. Lowe has accepted a position as overseer of carding at the Joseph Noone's Sons Co., Peterboro, N. H. He was formerly employed at the Cheshire Mills, Harrisville, N. H.

E. J. Bourque has accepted a position as second hand in the spinning department at the Moosup Mill, American Woolen Co., Moosup, Conn. He was formerly employed at J. Broadbent & Son's Mill, Unionville, Conn.

George Davis has accepted the position as second hand of carding at the Moosup Mill, American Woolen Co., Moosup, Conn. He comes from Hillsboro, N. H.

Eugene Mellor, for the past 10 years overseer of dressing, spooling, twisting and skein winding at the Namquit Worsted Mill, Bristol, R. I., has severed his connection with that company.

Charles P. Doane, superintendent of the Thomas Kent Manufacturing Company, Clifton Heights, Pa., has been elected superintendent of the South Village Mill, S. Slater & Sons, Inc., Webster, Mass. He will succeed Henry E. Kirk, who has resigned. Mr. Doane will take up his new duties May 1.

Henry A. Cole, superintendent of Fairbanks & Dorr, Guild, N. H., has resigned his position with that company.

A. M. Agle has been promoted from overseer to superintendent of the Ipswich Mill, Gilmanton Department, Belmont, N. H.

John B. Bolton, superintendent of the weaving department at the Arlington Mill, Lawrence, Mass., has resigned his position with that company.

Henry Fitzgerald has been appointed designer at the Louisville Woolen Mills, Louisville, Ky.

Bernard Igoe, overseer of dyeing at Stephen, Sanford & Sons' Mill, Amtserdam, N. Y., for the past twenty years, has resigned his position with that company.

Harold Faulder, overseer of weaving at the Peace Dale Manufacturing Company, Peace Dale, R. I., has severed his connection with that company. He has returned to his home in England. He is succeeded by Sylvester Estabrooks, of Wakefield, R. I.

Charles S. Cook, for several years boss dyer for the American Felt Company, Waite Mill, Franklin, Mass., has accepted a position as overseer of dyeing at the Essex Mill, American Felt Company, Picton, N. J.

Richard Hill has accepted the position as overseer of finishing at the Livingston Worsted Company, Washington, R. I. He was formerly employed at the Continental Worsted Company, Providence, R. I.

Roland Hartley has accepted the position as overseer of dyeing for the Russell Manufacturing Company, Pittsfield, Mass., to succeed Fred C. Pohlmann.

George Irons has accepted the position of overseer of weaving at the Daniels Worsted Company, West Rutland, Mass. He was formerly in charge of the night weaving at the Waterman Worsted Company, Putnam, Conn.

K. J. Whalen has accepted a position as overseer of dyeing at the Cheshire Mill, Harrisville, N. H. He was formerly employed at the Huntington Manufacturing Company, Huntington, Mass.

James Marcure has accepted the position of overseer of weaving at the Nottingham Mill, B. B. & R. Knight Company, Providence, R. I. He formerly held this position and comes from Danielson, Conn.

Thomas Bickerstaffe, for the past four years overseer of the cloth room at the Quidnick Windham Manufacturing Company, Willimantic, Conn., has resigned to accept a similar position with the Chicopee Manufacturing Company, Chicopee Falls, Mass.

Esau Carter, second hand in the weaving department at the Booth Manufacturing Company, New Bedford, Mass., has resigned his position with that company.

C. L. Pounders has been transferred from day overseer of spinning to night overseer of carding at the Prendergast Cotton Mills, Prendergast, Tenn.

C. F. Cunningham has been appointed superintendent of the Bibb Manufacturing Company, Mill No. 2, Macon, Ga. He was formerly employed at the Fulton Bag & Cotton Mills, Atlanta, Ga.

W. F. O'Pry has accepted the position of overseer of carding at the Prendergast Cotton Mills, Prendergast, Tenn.

C. E. Hutchinson has been elected president of the Wymojo Yarn Mill, Rock Hill, S. C., to succeed W. S. Moore.

Joseph Haw has been promoted to the position of superintendent of the Enoree Manufacturing Company, Enoree, S. C.

F. L. Chapman, who has been superintendent of the Riverside plant of the Dan River and Riverside Mills, Danville, Va., has resigned his position with that company. He has retired from active life, having been superintendent of this mill for fifteen years. He is succeeded by W. W. Moore of Rock Hill, S. C.

J. F. Mims has accepted the position of overseer of carding and spinning at the Fort Mill Manufacturing Company No. 1, Fort Mill, S. C. He was formerly employed at the Manetta Mills, Lando, S. C.

A. D. Anderson, formerly overseer of carding and spinning at the Fort Mill Manufacturing Company No. 1, Fort Mill, S. C., has accepted a similar position at Mill No. 2.

D. L. Boulware, formerly overseer of carding at the Watts Mill, Laurens, S. C., has resigned to accept a position at Columbia, S. C.

William Kinder, overseer of mule and ring spinning at the Totokett Manufacturing Company, Versailles, Conn., has resigned his position with that company to accept a similar one with the Burgess Mill, Pawtucket, R. I. Mr. Kinder has been in the employ of the Totokett Manufacturing Company for the past six years. The help in the spinning department presented him with a watch forb and a pipe. The Totokett Manufacturing Company held a reception for Mr. Kinder and the evening was spent in a social manner. C. W. Perkins, in behalf of the members present, presented Mr. Kinder with an expensive gold watch suitably engraved.

John Collie has accepted a position as superintendent of the Knight Woolen Mill, Provo, Utah, to succeed William U. Hanke. Mr. Collie was formerly superintendent of the Wallace & Smith Blanket Mill, LaPorte, Ind., but later with the South Bend Woolen Mill, South Bend, Ind.

J. J. Bolton has accepted a position as overseer of weaving at the Esmond Mill, Esmond, R. I. He succeeds Alfred Wallwork, who has become designer in the designing department. Mr. Bolton was formerly employed at the Arlington Mill, Lawrence, Mass.

Thomas F. Kelly has accepted a position as overseer of dyeing at the Hudson River Woolen Company, Newburgh, N. Y. He was formerly employed at Dexter, Me.

J. C. Cameron has accepted a position as assistant superintendent and designer at the Lymansville Company, Lymansville, R. I. He comes from Malden, Mass.

E. J. Bouchard, superintendent of the Falconer Towel Company, Falconer, N. Y., has resigned his position with that company.

J. M. Dimmick, overseer of dyeing at the Phoenix Woolen Company, Stafford, Conn., has resigned his position with that company after twenty-five years of service. He is succeeded by Raffael Vallani.

Thomas Henry has accepted a position as overseer of knitting for The Erstling Brothers Knitting Mills, Inc., Philadelphia, Pa.

A. B. Brown has been promoted from second hand to overseer of carding at the Chronicle Mill, Belmont, N. C., to succeed his father, E. L. Brown.

J. R. McMahan has succeeded A. A. Roddy as overseer of spinning at the Carolina Mill, Greenville, S. C. He was formerly employed at the Apalache Mill, Arlington, S. C.

O. A. Reeves has accepted a position as overseer of carding at the Carolina Mills, Greenville, S. C.

Frank Carter has accepted a position as overseer of weaving at the Lydia Mills, Clinton, S. C.

J. V. Jones has accepted the position of overseer of spinning, spooling and warping at the Apalache Mill, Arlington, S. C.

E. B. Ellenburg has accepted a position as overseer of weaving and slashing at the Conestee Mills, Reedy River, S. C.

C. R. Hughes has accepted a position as second hand of spinning at the Durham Mills No. 6, Durham, N. C.

Charles E. Thomas has been appointed superintendent of the Warren Manufacturing Company, Warren, R. I. He comes from Woonsocket, R. I.

E. B. Nash, superintendent and overseer of carding at the Bay State Cotton Corporation, LeRoy, N. Y., has resigned his position with that company.

J. E. Truesdell, overseer of spinning at the Jefferson Manufacturing Company, Jefferson, Mass., has resigned his position with that company.

James W. Furness has accepted a position as overseer of carding at the Uncasville Manufacturing Company, Uncasville, Conn.

Charles V. Browne has accepted a position as overseer of finishing at the Devonshire Mill, Goff's Falls, N. H., to succeed Robert J. Toas. Mr. Browne was formerly employed at the Brampton Woolen Company, Penacook, N. H.

Thomas Harrow has accepted a position as overseer of carding at the Warren Manufacturing Company, Warren, R. I., to succeed Thomas Warburton.

Thomas Warburton, overseer of the carding department at the Warren Manufacturing Company, Warren, R. I., has severed his connection with that company.

Patrick Farrell, overseer of the cloth department at the Tremont & Suffolk Mill, Lowell, Mass., has resigned his position with that company.

L. C. Hildreth, for a number of years overseer of ring spinning at the Berkshire Cotton Manufacturing Company, Adams, Mass., has resigned his position with that company. He is suceeded by Fred Bissaillon of North Pownal, Vt.

Peter McDermott, master mechanic for the Stillwater Worsted Company, Harrisville, R. I., has resigned his position with that company.

John York, who has been second hand of spinning for the Berkshire Manufacturing Company, Adams, Mass., has been appointed overseer of spinning for their mill at North Pownal, Vt.

Thomas Watters has accepted a position as overseer of weaving and dressing at the Arlington Mill, Lawrence, Mass. He was formerly employed at the Sonnhill Worsted Company, Danielson, Conn., having recently come from the Cleveland Worsted Mill, Cleveland, Ohio.

M. M. Trotter, Jr., formerly secretary and assistant treasurer, and who has held responsible positions with the Parker Cotton Mills Company, Greenville, S. C., for a number of years, has severed his connection with that company to accept a position with the Callaway interests at LaGrange, Ga., which include a number of mills representing the largest amount of capital of any group of mills in that State.

D. L. Kelly has accepted a position as overseer of spinning at the McAden Mills, McAdenville, N. C. He was formerly employed at the Henry River Manufacturing Company, Hildebran, N. C.

S. L. Adler has been appointed superintendent of the Magnolia Cotton Mill, Magnolia, Miss. He was formerly employed at the Stonewall Cotton Mills, Stonewall, Miss.

G. W. Hill has been appointed assistant superintendent of the Athens Manufacturing Company, Mill No. 2, Athens, Ga.

C. L. Chandler, who has been overseer of weaving for the past nine years at the Loray Mills, Gastonia, N. C., has succeeded N. Ingle in a similar position at the Olynpia Mill, Columbia, S. C.

J. D. Loner has been promoted from overseer of spinning to superintendent of the Dwight Manufacturing Company, Alabama City, Alabama.

F. L. Barstow, overseer of dyeing at the Talbot Mill, North Billerica, Mass., has resigned his position with that company. He is succeeded by William E. Rowlandson.

C. F. Taylor has been apointed superintendent of the Schadewald Mill, Philadelphia, Pa. He was formerly employed for this company among the selling force.

Fred J. Leibold has been appointed overseer of weaving at the Sheridan Woolen Mill, Ashuelot, N. H. He was formerly employed at the Brampton Woolen Mill, Penacook, N. H., but later with the Tilton Mill of Tilton, N. H.

Fred Langley has accepted a position as second hand of spinning at the Orr Felt & Blanket Company, Piqua, Ohio. He was formerly employed at Reedsburg, Wis.

John E. Millett has accepted a position as overseer of weaving at the Tilton Mill, Tilton, N. H., to succeed Fred J. Leibold.

S. M. Arrington has accepted the position as overseer of spinning at the Swift Manufacturing Company, Columbus, Ga.

S. A. McHatna has been appointed night superintendent of the Maplecroft Mills, Liberty, S. C.

J. J. Mahoney has accepted a position as overseer of dyeing at the Hamilton Carhartt Mills, Rock Hill, S. C. He was formerly employed in a similar position at the Locke Mill, Concord, N. C.

J. H. Rhodes has accepted a position as overseer of carding, spinning and spooling at the Sylvan Cotton Mill, Shelbyville, Tenn.

Herbery Lindsay, manager of the Ottaray and Wallace Mills of the Parker Cotton Mills Company, has succeeded M. M. Trotter in their mills at Greenville, S. C.

Clifford Costine has resigned his position as superintendent of the Moosup Mill, American Woolen Company, Moosup, Conn. He is to accept a similar position with the Webster Woolen Company, Sabattus, Me. James Reynolds succeeds Mr. Costine as superintendent of the yarn mill of the Moosup Mill.

Ernest Cooper has accepted a position as superintendent of the Medway Manufacturing Company, Medway, Mass. He formerly held this position.

Fred P. Harmon, overseer of finishing at the Talbot Mill, North Billerica, Mass., has severed his connection with that company.

Arthur Torrey has accepted a position as overseer of finishing at the Ottaquechee Woolen Company, North Hartland, Vt. He was formerly employed at the Merrimack Woolen Company, Lowell, Mass.

Forrest V. Adams, overseer of finishing at the Ottaquechee Woolen Company, North Hartland, Vt., has resigned his position with that company.

Jesse G. Wolfe has accepted a position as overseer of weaving and slashing at the Drayton Mills, Spartanburg, S. C.

James C. Carmark, overseer of dyeing at the Dunn Worsted Mill, Woonsocket, R. I., for the past four and a half years, has resigned his position with that company.

Oscar H. Gledhill, assistant superintendent and designer for Mayo & Sons Mill at Foxcroft, Me., has severed his connection with that company.

John Mara has accepted a position as overseer of spinning at the Jefferson Manufacturing Co., Jefferson, Mass.

H. M. Rollins, president of the Des Moines Hosiery Mill, Des Moines, Ia., died after an operation, at the age of 74 years. The Des Moines Hosiery Mill, which Mr. Rollins represented, was one of the largest mills in the Middle West and employed over 400 hands, manufacturing men's, women's and children's ribbed hosiery. He is survived by a wife and two sons.

## DEATHS.

Francis Morris, president of the First National Bank and senior member of the firm of A. V. Morris & Sons, manufacturers of ribbed underwear at Amsterdam, N. Y., died at his home in this city in his sixty-fourth year of apoplexy. Mr. Morris was born in Amsterdam. His early education was obtained in the public schools, followed by a course in the Colonial Warring Military School in Poughkeepsie, N. Y. At the age of 17 years, in company with his brother, John V. Morris, he engaged in the manufacture of cotton batting. After disposing of the cotton batting business, Mr. Morris entered the banking business with his father. In 1881 a partnership known as A. V. Morris & Sons was formed consisting of A. V. Morris and his two sons. Francis Morris took up active management of the No. 1 Morris Mill. Mr. Morris is survived by his wife and four children.

Harry P. Morrison, of the firm of Morrison & Gross, silk manufacturers of Paterson, N. J., died at the St. Francis Hospital in Jersey City, N. J., from a wound inflicted by a pistol shot while riding on the train from Paterson to Jersey City. Worry over financial matters caused Mr. Morrison to commit the act of self destruction. He is survived by his wife and two children.

John Hamilton, senior member of firm of John Hamilton & Son, manufacturers of carpets operating the Montgomery Carpet Mills at Howard St. and Lehigh Ave., and the Hamilton Mill at Howard and Huntingdon Sts., Philadelphia, Pa., died at his home, 8233 Seminole Ave., St. Martins, after an illness of several months. At the time of his death Mr. Hamilton was in his seventy-first year. He was born in Ireland. He came to this country when very young and engaged in the manufacture of carpets, in which industry he continued until the time of his death.

Anthony Gref, president of The Bayer Company, Inc., manufacturers and dealers in aniline, alizarine and vat colors, with office at New York City and works at Renssalaer, N. Y., died at his home in New York City at the age of 55 years. He was born in Brooklyn, N. Y., and received his early education in that city. He was later admitted a member of the bar and made a specialty of the patent law business. He is survived by his wife and one son.

Charles Evens, for many years a manufacturer of cardigan jackets and sweater coats at Needham Heights, Mass., died April 23 at Natick, Mass. He was born at Leicestershire, England, eighty-nine years ago. He was a resident of Needham for fifty years and for many years he was a deacon of the First Methodist Episcopal Church. He leaves two sons, Charles Evens, Jr., a manufacturer of knit goods at Needham Heights, and George Evens of Natick, Mass.

Galen C. Moses, treasurer of the Worumbo Manufacturing Company, Lisbon Falls, Me., died April 19 at his home in Bath, Me., of pneumonia, in his eightieth year. Mr. Moses has been treasurer of the Worumbo Manufacturing Company since the time of its organization. He was a public spirited man and closely identified with many of the civic movements of his home city, Bath, Me. He was a director of the First National Bank and presented the city of Bath with a public library some years ago. His wife survives him.

Gardiner Hall, senior member of the firm of Gardiner Hall, Jr., & Company, South Willington, Conn., manufacturers of spool cotton, died on April 17 at the age of 78 years. He was born in Newport, R. I., and came to South Willington in 1848. In 1860 he began manufacturing and operated the plant continually with the exception of one year, in 1861, when there was a temporary suspension on account of the war. He was a director of many financial institutions in Connecticut and Massachusetts. His wife, one son and three daughters survive him.

Fred A. Cumnock, superintendent of the Pioneer Cotton Mills, Guthrie, Oklahoma, died in that city. He was well known in the South, having been superintendent of the Whitney Cotton Mill at Spartanburg, S. C., and the Humboldt Cotton Mill of Humboldt, Tenn. He is survived by his father who is a resident of Boston, and also two brothers.

Arthur Elston, who formerly operated the Elston Worsted Mill at Providence, R. I., and Wallingford, Pa., who later operated the Providence Mending Company of Philadelphia, Pa., died at his home in Folsom, Pa., April 14 of apoplexy at the age of 42 years. Mr. Elston was for a number of years superintendent of the Colwell Worsted Mill at Providence, and was also connected with the Maynard Mill of Philadelphia. He is survived by a widow, three brothers, also his father and mother.

Samuel Bancroft, Jr., president of the Joseph Bancroft & Sons Company, Wilmington, Del., died at the Hahn Amann Hospital, Philadelphia, Pa., April 22, following an operation, at the age of 75 years. He entered the mill business when a young man and was admitted to the firm in 1865. His wife and one son survive him.

John Dudson, of River Point, R. I., who was for a number of years employed at the Warwick Lace Works of River Point and previously to that time with the Phenix Lace Mill of Phenix, R. I., died suddenly at Nottingham, England, where he had gone to secure a patent on a device which he had got up for a machine to weave colored lace goods. He is survived by a widow, one son and a daughter.

Lawrie E. Berkeley Craig, United States representative of the York St. Flax Spinning Co. of Belfast, Ireland, died at his home in South Orange, N. J., of pneumonia, at the age of 58 years. Mr. Craig was very prominent in the linen trade and the announcement of his death was a shock to his many friends. He is survived by his wife and one daughter.

Adolph Fuchs, a retired knit goods manufacturer, died at his home in Brooklyn, N. Y. He is survived by three sons and three daughters.

# New Publications

**Any work noticed under this heading can be obtained, postage or express charges free, by sending the price listed to Lord & Nagle Company, 144 Congress St., Boston, Mass. A catalogue of textile books in the English language will be sent free on application.**

Woolen and Worsted, by Prof Roberts Beaumont, Leeds University, 640 pages, 6 by 10; Macmillan Co., 665 Fifth Ave., New York. Price $12.

While this is the third revised edition of the author's "Wool Manufacturing" published a number of years ago, the additions have been so extensive as to make it substantially a new work and one that is a valuable addition to the literature of wool manufacturing. Beginning with a chapter on the different materials used in the manufacture of wool goods, the contents are arranged under the following heads: Materials, Woolen Yarn Manufacture, Woolen Yarn Construction, Worsted Yarn Construction, Yarn Structure, Principles of Fabric Structure, Loom Mounting, Hand Looms, Power Looms, Weave Combinations, Color Applied to Weaves, Compound Fabrics, Fabric Analysis and Calculations, Finishing of Fabrics. There are 469 illustrations and an excellent index which facilitates reference to any subject desired. The book will prove of great value to wool manufacturers and woolen and worsted mill operatives.

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Possibilities of Future Wool Production in Australia, South American and South Africa (Moeglichkeiten fuer kuenftige Wollproduktion in Australasien, Sued Amerika und Sued Afrika) by Friedrich Betz, an Australian wool buyer; 40 pages, 6 by 9; Verlag der Leipziger Monatschrift fuer Textile Industrie, Leipzig, Germany.

This is a reprint of a series of articles that appeared originally in the "Leipziger Monatschrift fuer Textil-Industrie." The author treats the subject under the following heads: Present Basis of Values, Geological and Geographical Notes on Australia, Rain-Fall, Drouths, Establishment of the Australian Colony, Development of the Sheep and Cattle Industry, Discovery of Gold and Coal, Artesian Wells, The Labor Supply, High Wages, Labor Unions, State Railways, Frozen Meat Trade, Influence on Wool Production, Panama Canal, San Francisco Exposition, German Trade With Australia, Possibilities of Australia, a World Factor of the First Rank, South America, Present Beef Trade, Increase in Wool Production, South African Union, Great Possibilities for Wool Growing, German South West Africa, German East Africa, Togo, Slight Possibilities for Wool Growing, Free Wool in the United States, Prices for Wool, Mutton and Beef. The text is in German.

The G. M. Parks Co., Fitchburg, Mass., have closed a contract with the West Boylston Mfg. Co., Easthampton, Mass., for their fourth large installation of turbo humidifiers. This is especially gratifying as it is their third repeat order.

### BUSINESS LITERATURE

Four Necessary Steps in Protecting Trade Marks; Henry C. Thompson, Patent Attorney and Trade Mark Specialist, 15 State St., Boston, Mass.

This booklet directs attention to the importance of protecting rights to trade marks against: (1) Unwitting appropriation of a trade-mark belonging to another; (2) The hazard of trouble arising under "common law" trade-mark ownership; (3) Dire results from the loss of documentary "trade-mark title" evidence; (4) The chance of conflicting trade-marks being issued to others, under a recent ruling of the Commissioner of Patents. Much useful information is given under each of these four heads, and the owners of trade-marks are told in concise, clear language how to prevent their rights from being appropriated by others.

The Output; The Cooper Hewitt Electric Co., Hoboken, N. J.

This little magazine is devoted to increasing production in manufacturing and other industries. It has been the constant endeavor of the Cooper Hewitt Electric Co. to aid manufacturers both directly and indirectly to increase their "Output" and with this little booklet they will endeavor to bring to them, from time to time, such items as they can, relative to this important part of their business.

Safety First Appliances; Salem Elevator Works, Salem, Mass.

The very increasing demand for more safeguards and requirements of State and liability companies has caused the Salem Elevator Works to devote considerable time to perfecting appliances which are simple in operation and at the same time economical to install. These are desribed and illustrated in an attractive 20-page catalogue just issued by this concern. Included among these safety devices may be mentioned automatic hatch doors, gates, locks and gongs.

# Industrial Notes

### SCOTT & WILLIAMS, INC., "ANTI-RUN-BACK" PATENT

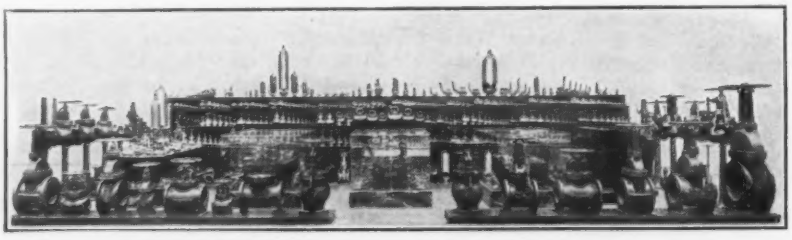
We are informed that a decree in the "anti-run-back" case of Scott & Williams, Inc., covered by Patent No. 976,555,. dated November 22, 1910, against John Blood & Company, Philadelphia, has been entered, awarding an injunction, sustaining the validity of the patent and its infringement by John Blood & Company, who have taken out a license under the patent. This patent covers stockings in which an "anti-run-back" course is knitted in to stop the running of stitches due to garter tears or from other causes. Scott & Williams Models G, F and O machines produce stockings having this feature.

### TEXTILE SCHOOL ALUMNI

The Philadelphia Textile School Alumni Association of New England will hold their annual meeting some time during the first part of June, the exact date not having been definitely settled. The association would like to hear from any New England resident not already a member and eligible to membership. The Crown Hotel will be made the headquarters for the occasion. Further information may be secured by addressing the Association at P. O. Box 427, Pawtucket, R. I.

### LUNKENHEIMER EXHIBIT AT SAN DIEGO EXPOSITION

This exhibit is fully in line with the claim of the Lunkenheimer Company of being the largest manufacturers of high grade engineering specialties in the world. In great variety are displayed bronze, iron, puddled, semi-steel and cast steel globe, angle, cross, check, gate, non-return boiler stop and throttle valves; also bronze and iron, pop safety, relief, and blow-off valves; water columns and gauges; whistles, ground key work, injectors and ejectors; bronze fittings and unions; cylinder lubricators, oiling devices, oil and grease cups; automobile and motor boat specialties, etc. The display is exceptionally attractive, its neatness adding materially to its appearance. Strength, durability and expert workmanship are at once apparent upon the examination of any of the articles shown. Information regarding the products is cheerfully given by the attendants. The executive offices and factories of The Lunkenheimer Company are located in Cincinnati, Ohio. Branches and selling agencies are maintained everywhere.



THE EXHIBIT OF THE LUNKENHEIMER CO. AT SAN DIEGO

The Connecticut Mill Supply Co. are now occupying their new plant at Woodbury, Connecticut, where they have equipped their factory with modern machinery for making drop wires. They are making a specialty of this work and their wires are free from burr and have a special finish so that there is no chafing of the yarn. Manufacturers may have their drop wires made up ahead and carried in stock for prompt delivery if desired. They have perfected a preparation in which the wires are kept so they cannot rust while in stock. Woodbury is only a short trolley ride from Waterbury and they have excellent manufacturing facilities at this place. A new power plant is now under way and they are putting in a new wheel. Mr. C. W. Peck, general manager, knows what the trade wants and means to give it to them.

### THE SITUATION IN FRANCE

Leon Lefevre, editor of the French trade paper, "Revue Generale des Matieres Colorants," has this to say about the situation in France:

"The European war has demonstrated the dependence of the world on Germany for dyes. As to making these dyes in France, we must admit that we could not manufacture all the dyes used over night. An industry of this nature could not be organized even in many months. In fact, we could not undertake the task at all without absolutely prohibiting the importation of German dyes, because the Germans possess a real monopoly powerfully organized. They have a capital of $100,000,000, with their plants already paid for and written off their books. They have forty years of technical experience, an army of trained chemists and unlimited scientific laboratories. Lastly, they have a remarkable commercial organization, which carries their products to every part of the world. It is against such an enormous and powerful machine we must fight, and we cannot succeed without prohibition of German imports absolutely."

### WOOLEN-RAG SHORTAGE IN ENGLISH DISTRICT

Consul Homer M. Byington, Leeds, March 16

Dewsbury and Batley, in the Leeds district, recognized as the center of the woolen-rag trade of the world, are suffering from a shortage of rags, which is reported to have been equalled only at the time of the epidemic of cholera on the Continent, about 20 years ago, when, as a sanitary measure, imports were prohibited by the Government. During the whole of last month (February, 1915) the imports amounted to only 774 tons as compared with 1,000 tons per week in other years, when Germany, Denmark, France, Holland, Belgium, Sweden and Russia have sent their rags to this market. As a result English rags are much sought after, and prices of rags are going up by leaps and bounds.

#### RAG TRADE WITH AMERICA

The usual imports of American rags are being stopped by the high ocean freight rates and chiefly by the difficulty in securing railway transportation from Liverpool and Hull. Owing to the Government having taken over the railroads for transporting troops and war supplies, it has been found practically impossible to secure railway transportation from the ports already named except after disastrous delay. One American firm finding stor-

age charges mounting up on a consignment of United States rags at Hull, with no prospect of early delivery, caused the same to be shipped back to the United States. During the months of February and March, 1914, rags were invoiced through this consulate to the United States to the value of $31,321, while for the corresponding months of 1915 no invoices have been presented.

## PERMUTIT INSTALLATIONS

Among the improvements being made by the Philadelphia Dye Works at their plant is the installation of a Permutit water softening filter, which will treat all of the water used in their dye house. Among other textile orders received, the Permutit Company reports one from the Interwoven Mills for their mill at Martinsburg, West Virginia. This softener will treat water for their new bleachery.

In spite of the uncertain conditions in the textile trade, The Permutit Company reports that the number of Permutit filters installed for textile mills is increasing. Up to the present time there are more than two hundred and fifty Permutit filters in operation in the United States in addition to over four hundred in Europe.

## HALF-TIME SCHOOL IN COTTON-MILL TOWN

From Commerce Reports

In September, 1911, the Textile Industrial Institute was opened in Spartanburg, S. C., in the heart of the southern manufacturing district, for the purpose of discovering, training and placing practical men and women as leaders among the half million cotton mill operatives. The institute addresses itself to the task of furnishing a class of young men of high moral character and special training, who shall rise to positions of influence and intelligent leadership as superintendents and overseers in the mills, while its young women graduates are being trained to establish such homes as will challenge their fortunate acquaintances to do likewise.

By a system of half-time alternation between work in the mill and class room duties the institute discovers the fittest young men and women and affords opportunity for self-support. The training consists of thorough grounding in the common branches, accompanied by religious instruction and sociological studies, and practical work in textiles and home making. The instruction is largely individual in character, and every effort is made to promote initiative and self-development. The principal of the school is a practical mill man, who is able to supervise the theoretical side of the work in the school as well as the practical work in the mill. The home-making course for girls includes practical lessons in cooking and sewing, with informal lectures on housekeeping, sanitation, home nursing, personal attractiveness, beautification of premises, kitchen gardening, poultry raising, etc.

There is a well-defined demand in the mill communities for men and women fitted with the preparation afforded by the institute, and the success of the experiment seems assured.

The institute is financed by private contributions and subsidies from the mills and other corporations. There is hearty cooperation on the part of cotton mill presidents and their several corporations, which have, with the consent of the stockholders, assessed themselves 3 cents per spindle to assist in the erection of the main building of the institute, at the same time declining any official relation with the enterprise in order that no sinister motive might be suspected in their philanthropy. Each of the railroads entering Spartanburg agreed to transport material for this building free of charge.

It is necessary to raise a scholarship for each student, since there is no endowment to cover the margin of difference between half-time earnings in the mill and the costs to the institute for schooling.

Although this enterprise originated and is being directed under private auspices, the plan contains certain features that are applicable to public school conditions. The president of the institute is Rev. D. E. Camak.

## SERGE WEAVING IN JAPAN

Consul George N. West, Kobe, March 13

With the development of the woolen industry in Japan, notes the Asahi, the outturn of serges has shown a marked annual increase. The total outturn last year amounted to about 300,000 pieces, and imports, except of those qualities required for foreign-style clothes, are no longer made. It is believed that when a little more progress is made in the art of weaving the import even of the superior serges will be checked.

Woolen yarns for serges were chiefly imported from Austria, Germany, France, and England, Trieste being the principal port of shipment. However, not more than half the quantity of yarns ordered for this year has arrived, while the orders themselves were about 20 per cent. less than in recent years. Weavers complain of the shortage of yarns, which has sent up prices per pound for No. 612 from about $1.13 to about $2.23. This has made it difficult for weavers to continue operations with profit, and the output of serges has decreased about 40 per cent.

The woolen yarn company recently established at Himeji has begun operations and yarn dealers have sent some orders. Owing to its limited experience, however, it is not yet able to produce qualities as desired. The company has been very busy executing orders for the supply of coarse yarns and not more than 10 per cent. of its orders for serge yarns has been filled. It is believed, therefore, that the production of serges will be still further reduced On the other hand, the serge market has not advanced in sympathy with the advance in yarns. Dealers are holding large stocks brought over from last year—about 20 per cent. of the average annual outturn. Holders are strongly competing in disposing of their stocks and the market is ruling 5 or 6 per cent. lower than at this time last year.

### AN INDICATION OF OPTIMISM

The Kissel Motor Car Company reports that the increased sale of trucks this year fairly proves a condition of optimism in the business world. It is stated that by far more Kissel trucks have been sold during the first quarter of 1915 than in any corresponding period of previous years. This refers to trucks for domestic use, without regard to those shipped abroad. It is maintained by the Kissels that when steps are so freely and generally taken to improve delivery and haulage facilities, that it necessarily means that the buyers expect increased trade.

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The thirty-third semi annual meeting of the National Wool and Worsted Overseers will be held at Rocky Point, Providence, R. I., on Saturday, May 15. Special cars will leave Union Station, Providence, for Rocky Point at 10 and 10.30 A. M.

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### FOREIGN TRADE OPPORTUNITIES

The Bureau of Foreign and Domestic Commerce, Washington, D. C., has published the following items regarding opportunities for foreign business in textile materials. Reserved addresses may be obtained from the Bureau and its branch offices. Request for each opportunity should be on a separate sheet and the file number given.

Rugs, canvas belting, mosquito netting, curtain rollers, etc., No. 15807: One of the commercial agents of the Bureau of Foreign and Domestic Commerce in South America reports that a firm in that country wishes to receive catalogues, weights, etc., and quotations f. o. b. steamer New York on cheap rugs of cotton and wool; canvas machinery belting; mosquito netting; curtain rollers; and metal curtain poles and rings with hooks. It is stated that the firm wishes terms of 90 days. The agent remarks that the correspondence, catalogues, etc., is preferred in the Portuguese language, but that may be in English.

Hosiery, No. 15572: The Bureau of Foreign and Domestic Commerce is in receipt of a communication from an American manufacturing company stating that one of its correspondents in the Levant wishes to establish commercial relations with American manufacturers of hosiery. It is explained that the firm wishes to give special attention to American makes. Correspondence should be in French.

Underwear and dry goods, No. 15783: The Bureau of Foreign and Domestic Commerce is in receipt of a communication from a wholesale merchant in one of the neutral countries of Europe, stating that he desires to establish commercial relations with American manufacturers and exporters of cheap cotton-fleeced underwear and general dry-goods lines. He also wishes to receive trade journals which are published in the interest of the business in which he is engaged. He states that he can furnish foreign and American references.

Cotton piece goods, cotton sheeting, etc., No. 15863: A business man in France has informed an American consul that he desires to communicate with American manufacturers of gray cotton piece goods; cotton, linen and hemp sheeting; single-width flannels; and woolen cloths. Correspondence is requested in French, and quotations should be in French currency. Bank reference is given.

Wool, No. 15864: An American consular officer in Russia reports that a merchant in his district desires to receive immediate offers of wool. Samples, etc., and c. i. f. quotations should be sent at once Duplicate samples should be sent to the American consulate.

Gas mantles, No. 15791: One of the commercial agents of the Bureau of Foreign and Domestic Commerce in South America reports that a company in that country is in the market for 15,000 gas mantles, similar to the samples which may be inspected at the bureau and its branch offices. It is stated that the company purchases about 25,000 mantles per annum. The company states that the mantles now in use are fairly satisfactory, but that it desires to get a mantle of greater efficiency and longer life. American firms desiring to bid for this business should send, prepaid, at least two samples of each mantle to be tested.

Cotton yarn, cornstarch, lubricating oils, etc., No. 15792: The Bureau of Foreign and Domestic Commerce is in receipt of a letter from a commission merchant in one of the neutral European countries, stating that he wishes to secure the names and addresses of producers and exporters of cotton yarn, cotton cloths, cottonseed oil and cake, glucose, cornstarch, linseed cake, lubricating oils, tallow, soap, etc.

Sewing machines, knitting machines, duplicators, etc., No. 15827: An agent in Europe has informed an American consul that he wishes to correspond with exporters of sewing machines, knitting machines, duplicators, needles, aluminum in powder, powdered magnesia, radiators, pumps, electric bells and pocket lamps, and agricultural machinery. Correspondence may be in English.

Cotton seine twine, No. 15894: An American consular officer in Canada reports that a hardware firm in his district desires c. i. f. quotations on cotton seine twine, numbers 12 to 84, to be used in making fishing seines. It is stated the firm purchases about 20,000 pounds of this material annually.

Cotton cloth, etc., No. 15835: A business man in Canada has informed an American consul that he wishes to receive samples, prices, etc., of cotton cloth, such as nainsook, piques, etc., for the manufacture of underwear for women and children, and children's dresses. Bank reference is given.

Yarn, No. 15829: One of the commercial agents of the Bureau of Foreign and Domestic Com-

merce in South America reports by cable a market for American cotton yarn to be used in making hosiery. Samples and c. i. f. quotations should be sent at once. Terms cash.

Hosiery, underwear, etc., for women and children, No. 15857: A merchant in Europe has informed an American consul that he desires to establish commercial relations with American manufacturers and exporters of hosiery and underwear for women and children; also sewing thread. Reference is given.

Wearing apparel and rubber boots, No. 2134: Sealed proposals will be received at general depot of the Quartermaster Corps, Chicago, Ill., until March 10, 1915, for furnishing and delivering at either the Boston, New York, Philadelphia, Chicago, St. Louis, or San Francisco depots of the Quartermaster Corps, 180 pairs rubber boots, half hip; 40,000 yards blue denim; 68,000 pairs jean summer drawers; 50,000 yards olive and drab flannel shirting; 4,000 pairs white cotton gloves; 36,000 pairs canvas leggins; 130,000 pairs light weight woolen stockings, and 180,000 cotton, collarette undershirts. Proposals for rubber boots and white cotton gloves must be based on samples submitted with bids. All articles referred to herein are to be delivered in first-class commercial packages. Information furnished on application to depot quartermaster, 115-123 East Ontario Street, Chicago, Ill.

Thread, No. 15932: An American consular officer in Latin America has transmitted the names and addresses of a number of dealers in his district who are in the market for thread. It is explained that Nos. 30, 40, 50, 60, and 70 are most in demand; that spools containing 300 yards are now selling for 8 cents each.

Dress goods, No. 15908: A large importing firm in Canada has informed an American consul that it wishes to be put in communication with American manufacturers of dress goods. It wishes all cotton, wool, silk, or mixed goods of low and medium grades, from 40 to 54 inches wide.

Wearing apparel, etc., No. 15949: The Department of commerce is in receipt of a communication setting forth that a citizen of the United States has established a business in one of the South American Republics with a view to handling American goods The man desires to form commercial relations with firms manufacturing or dealing in ready-made apparel for women and children, including hosiery and shawls. He believes that there is a good market in that country for American patented articles.

Waste paper and woolen clippings, No. 15890: A business man in Canada has informed an American consul that he desires to be put in communication with American paper manufacturers who are in the market for waste paper and tailors' woolen clippings.

Gum thread, No. 15904: An American consul in Europe has been informed by a firm in his district that it wishes to correspond with American manufacturers of gum thread to be used in the textile industry. The consul has transmitted a sample of the thread to indicate the diameter, number, and length of threads which are wanted. The sample may be seen at the Bureau of Foreign and Domestic Commerce or its branch offices.

T. D. 35231. March 18, 1915. Drawback on hosiery. Drawback on hosiery manufactured by the Ipswich Mills, of Boston, Mass., with the use of imported artificial silk yarn.

T. D. 35239. March 22, 1915. Drawback on ladies' and men's hosiery. Drawback on ladies' and men's hosiery manufactured by John Blood & Co., of Philadelphia, Pa., with the use of imported yarns.

T. D. 35240. March 22, 1915. Drawback on table linens. Drawback on table linens manufactured by the H. W. Baker Linen Co., of New York, with the use of imported linen piece goods or with the use of unfinished table covers and napkins.

T. D. 35,258. March 25, 1915. Drawback on hosiery. Drawback on hosiery manufactured by the Ipswich Mills, of Boston, Mass., in whole or in part with the use of imported mercerized cotton yarn.

T. D. 35255. March 23, 1915. Drawback on dyed or dyed and spooled artificial silk yarn. Drawback on dyed or dyed and spooled artificial silk yarn manufactured by Mindlin & Rosenman, of New York, from imported gray or bleached artificial silk yarn.

T. D. 35261. March 26, 1915. Drawback on clothing. Drawback on clothing manufactured by the Siff Bros. Co., of New York, with the use of various imported fabrics and linings.

T. D. 35268. Secondhand jute bags, stenciled. Secondhand bags, made from plain woven jute fabrics, containing identificial marks consisting of two or three letters stenciled thereon and covering an insignificant amount of the surface of the bags, are not "dyed, colored, stained, painted or printed" within the meaning of those words used in paragraph 281, tariff act of 1913, and are therefore not excluded from classification thereunder. Such bags are dutiable at 10 per cent. ad valorem under paragraph 281, and not at 35 per cent. ad valorem under paragraph 284.

T. D. 35281. April 1, 1915. Drawback on hosiery manufactured by Pilling & Madeley, Inc., of Philadelphia, Pa., with the use of imported artificial silk yarn.

T. D. 35301. April 7, 1915. Solidonia fiber, uncarded. Solidonia fiber, degummed, though uncarded, dutiable at the rate of 15 per cent. ad valorem under paragraph 385, tariff act of 1913, as a nonenumerated article manufactured in whole or in part.

T. D. 35303. April 8, 1915. Drawback on hosiery. Drawback on hosiery manufactured by the Thos. W. Buck Hosiery Co., of Philadelphia, Pa., with the use of imported artificial silk fiber.

# Recent Textile Patents

BLEACHING, Dyeing and the Like, Apparatus for. 1,133,759. Orlando Sumner, St. Margarets-on-Thames, England.

BLEACHING Solution. 1,135,303. Arno Lehmann, Rheydt, Germany.

BOBBIN Holder. 1,135,712. Oscar L. Owen, Whitinsville, Mass.

FABRIC Doubling Machine. 1,133,440. Albert Leisel, Newburgh, N. Y.

FABRIC-Tearing Device. 1,134,293. William C. Stevens, Akron, O.

FIBROUS Material, Method and Apparatus for Retting. 1,133,590. Justin K. Toles, San Francisco, Cal.

KNITTING Machine. 1,134,749. Gustav A. Landenberger, Philadelphia, Pa.

KNITTING Machine Power Attachment. 1,135,212. Carl F. Schuessler, Montague, Mich.

KNIT Undergarment. 1,134,598. Max Erstling, Philadelphia, Pa.

LOOM Harness Stop Motion. 1,133,464. Erasme Gagnon, Pawtucket, R. I.

LOOM, Weft-Replenishing. 1,133,802. Simeon S. Jackson, Readville Mass.

LOOM. 1,135,969. Charles A. Littlefield, Lowell, Mass.

LOOM. 1,134,063. William H. Rankin, Waltham, Mass.

LOOM for Mechanical Manufacture of Lace. 1,135,782. Jean Farigoule, Paris, France.

LOOM, Narrow-Ware. 1,135,641. Andrew Weimar, Philadelphia, Pa.

LOOMS, Thread Parting and Holding, Means for. 1,134,487. Alonzo E. Rhoades, Hopedale, Mass.

LOOM. 1,135,701. Henry Langer, Middletown, Conn.

LOOM Warp Stop Motion. 1,133,366. Samuel B. Cutting, Bridgeport, Conn.

RUBBERIZING Fabric. 1,133,322. Frank A. Seiberling, Akron, O.

SPINNING Machine Thread Guide. 1,134,315. Joseph Coldwell, So. Swansea, Mass.

SPINNING Machines, Spinning-Tray for Cellular Material. 1,134,379. Oskar A. Guenther, Chemnitz, Germany.

SPINNING or Twisting Machines, Thread Guide Support for. 1,134,336. Lewis T. Houghton, Worcester, Mass.

WARPING Machine. 1,133,749. Eugene P. Searing, Paterson, N. J.

WARP Frame. 1,133,520. Friedrich E. Wirth, Hartmannsdorf, Germany.

WARP Threads, Machine for Piecing Together. 1,133,830. Max Wenzel, Spremberg, Germany.

**TRADE MARKS RECENTLY FILED FOR REGISTRATION**

78,905. Hosiery. Mark: Trimee. Owner: J. Cohen, Chicago, Ill.

79,739. Clothing. Mark: King-Man. Owner: D. M. Oberman Mfg. Co., Jefferson City, Mo.

80,082. Rugs and mats. Mark: Tri-nax. Owner: Palmetto Products Co., New York.

83,198. Embroidery yarns. Mark: Handikrat. Owner: H. A. James & Co., New York.

80,345. Embroidery silk, etc. Mark: Asiatic. Owner: The Brainerd & Armstrong Co., New London, Conn.

80,347. Embroidery silk, etc. Mark: Victoria. Owner: The Brainerd & Armstrong Co., New London, Conn.

81,287. Clothing. Mark: Manhattan. Owner: The Manhattan Shirt Co., New York.

82,656. Clothing. Mark: Novotex. Owner Henry S. Friend & Co., New York.

83,311. Woolen and worsted piece goods. Mark: W. & K. Owner: The W. & K. Co., Nasonville, R. I.

83,326. Cotton piece goods. Mark: Kicking mule. Owner: Indian Head Mills, Cordova, Ala.

83,334. Knitted underwear. Mark: 5000. Owner: Union Mills, Hudson, N. Y.

83,335. Knitted underwear. Mark: 550. Owner: Union Mills, Hudson, N. Y.

83,336. Knitted underwear. Mark: 7000. Owner: Union Mills, Hudson, N. Y.

83,337. Knitted underwear. Mark: 9000. Owner: Union Mills, Hudson, N. Y.

83,340. Ladies' dresses. Mark: Watch Your Step. Owner: Woolf & Shulhof, New York.

83,373. Cotton piece goods. Mark: Apache. Owner: Rafael del Castillo & Co., New York.

83,578. Yarns and threads. Mark: Grandma's. Owner: Dexter Yarn Co., Pawtucket, R. I.

83,665. Cotton piece and dress goods. Mark: El Cocotal. Owner: Nashua Mfg. Co., Nashua, N. H.

83,680. Piece goods made from cellulose yarns. Mark: Luvisca. Owner: Courtaulds, Ltd., London, Eng.

83,681. Yarns made of cellulose. Mark: Luvisca. Owner: Courtaulds, Ltd., London, Eng.

81,306. Cotton piece goods. Mark: Autoletherfabriks. Owner: Manchester Cotton Mills, Manchester, Ga.

83,058. Rugs and carpets. Mark: Royal Worcester. Owner: M. J. Whittall, Worcester, Mass.

83,059. Rugs and carpets. Mark: Chlidema. Owner: M. J. Whittall, Worcester, Mass.

83,245. Cotton piece goods. Mark: Colorfast Surfcloth. Owner: N. Fluegelman & Co., New York.

83,587. Ladies' petticoats and underwear. Mark: Madison Square. Owner: Harris Bros. & Barnett, New York.

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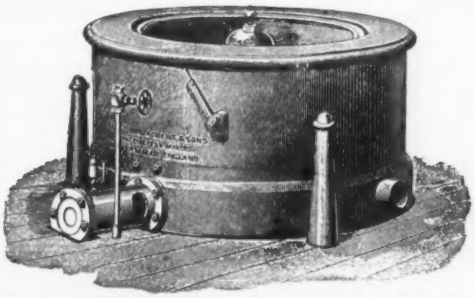

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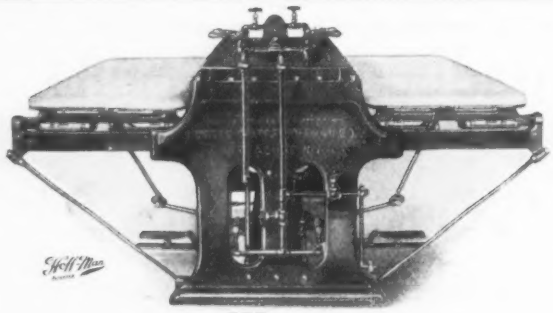

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——See Humidifying Apparatus.
**Albone.**
Roessler & Hasslacher Chemical Co.
**Architects and Mill Engineers.**
Cramer, Stuart W.
Dyer, W. E. S.
Ferguson, John W.
Main, Charles T.
Myrick, J. W. H.
**Asbestos Covering.**
Johns-Manville Co., H. W.
**Asbestos Products.**
Johns-Manville Co., H. W.
**Asphalt Tanks.**
Scaife, W. B., & Sons.
**Auctioneers.**
Conant, J. E. & Co.
**Automatic Feeds for Cotton and Wool.**
Hetherington, John & Sons, Ltd.
Leigh & Butler.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Saco-Lowell Shops.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Smith & Furbush Mch. Co.
Speed & Stephenson.
Tatham, William, Ltd.
Woonsocket Machine & Press Co.
**Back Filling.**
International Pulp Co.
**Bale Presses.**
Saco-Lowell Shops.
**Baling Presses.**
Boomer & Boschert Press Co.
Philadelphia Drying Mchy. Co.
Smith & Furbush Mch. Co.
**Ballers.**
Saco-Lowell Shops.
**Ball Bearings.**
S. K. F. Ball Bearing Co.
**Bandings.**
Lambeth Rope Corporation.
Sternberg, Fred, & Co.
**Baskets.**
Diamond State Fibre Co.
Lane, W. T., & Bro.
Standard Fibre Co.
**Beamers.**
Crompton & Knowles Loom Works.
**Bearings.**
——See Ball Bearings, Oil-less Bearings and Roller Bearings.
**Belting.**
Bond, Charles, Co.
Boston Belting Co.
Gandy Belting Co.
Graton & Knight Mfg. Co.
Hood, R. H., Co.
Johns-Manville Co., H. W.
Schieren, Chas. A., Co.
Williams, I. B., & Sons.
——See also Mill Supplies.
**Belting, Leather.**
Graton & Knight Mfg. Co.
Schieren, Chas. A., Co.
**Belting, Link.**
Graton & Knight Mfg. Co.
Schieren, Chas. A., Co.
**Belt Cement.**
Graton & Knight Mfg. Co.
Schieren, Chas. A., Co.
**Belt Dressing.**
Graton & Knight Mfg. Co.
Schieren, Chas. A., Co.
Stephenson Mfg. Co.
**Belt Lacing, Leather.**
Graton & Knight Mfg. Co.
Schieren, Chas. A., Co.
**Belt Tighteners.**
American Tool & Machine Co.
Hunter, James, Machine Co.
**Bindings.**
——See Tapes and Braids.
**Bleaching Eyes.**
Boston Belting Co.
**Bleaching Kiers.**
Arlington Machine Works.
Birch Bros. (Albert Birch, prop.).
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
New England Tank & Tower Co.
Philadelphia Drying Machinery Co.
Stearns Lumber Co., A. T.
Textile-Finishing Machinery Co.
**Bleaching Materials.**
Bosson & Lane.
Electro Bleaching Gas Co.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co., The.
Wolf, Jacques & Co.
Worden Chemical Works.
**Blowers and Blower Systems.**
Autoforce Ventilating System.
Buffalo Forge Co.
Carrier Air Conditioning Co.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.
**Bobbin and Spool Painting Machines.**
Speed & Stephenson.
**Bobbins, Spools, Shuttles, Etc.**
American Supply Co.
American Textile Specialty Mchy. Co.
Kunze, Otto.
Leigh & Butler.
Shambow Shuttle Co.
Speed & Stephenson.
Tebbets, E. L., Spool Co.
**Bobbin Winders.**
Altemus, J. K.
Lever, Oswald, Co.
Universal Winding Co.
**Boilers.**
——See Steam Boilers.
**Boxes, Box Shooks, Etc.**
Diamond State Fibre Co.
Pearson, J. T.
Standard Fibre Co.
Veneer Products Co.
**Braiding Machinery.**
New England Butt Co.
Textile Machine Works.
**Braids.**
——See Tapes, Braids and Edgings.
**Brass Hinges.**
Root, C. J., Co.
**Bridges.**
Scaife, W. B., & Sons.
**Brushers.**
——See Napping Machines.
**Brushes.**
Decker, M., & Co.
Felton, S. A., & Son Co.
Parks & Woolson Machine Co.
**Brushing Machines.**
Buhlmann, A. W.
Parks & Woolson Machine Co.
**Burr Pickers.**
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.
**Button-Hole Machines.**
Reece Button-Hole Machine Co.
**Button Sewing Machines.**
Union Button Sewing Co.
**Calico Printers' Machinery and Supplies.**
Arlington Machine Works.
Birch Bros., Somerville Mach. Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Rice, Barton & Fales Mch. & Iron Works.
Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.).
Taunton-New Bedford Copper Co.
Textile-Finishing Machinery Co.
——See also Dyeing, Drying, Bleaching, Machinery, etc.
**Canvas Baskets.**
Lane, W. T., & Bro.
**Cap Spindles.**
Am. Textile Specialty Mchy. Co.
Speed & Stephenson.
**Carbonizing Machinery.**
Birch Bros., Somerville Mach. Wks.
Buhlmann, A. W.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
Somerville Mach. Works (Albert Birch, prop.).
Textile-Finishing Machinery Co
Tolhurst Machine Works.
**Card Clothing.**
Ashworth Bros.
Atkinson, Haserick & Co.
Buhlmann, A. W.
Firth, William, Co.
H. & B. American Machine Co.
Leigh & Butler.
Riley, C. E., Company.
Schwartz, L. H. A., & Co.
Speed & Stephenson.
**Card Feeds.**
——See Automatic Feeds.
**Card Grinding Machinery.**
Atkinson, Haserick & Co.
Buhlmann, A. W.
Dronsfield Bros.
Entwistle, T. C., Co.
Firth, William, Co.
Fraser, Douglas & Sons, Ltd.
Leigh & Butler.
Riley, C. E., Company.
Smith & Furbush Machine Co.
Speed & Stephenson.
**Card Leather.**
Graton & Knight Mfg. Co.
**Carding Machinery.**
Fraser, Douglas & Sons, Ltd.
Hetherington, John & Sons, Ltd.
Saco-Lowell Shops.
Smith & Furbush Mch. Co.
Tatham, William, Ltd.
**Card Stampers and Repeaters.**
Hodgson, Walter W.
**Carpet Machinery.**
Altemus, Jacob K.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Parks & Woolson Machine Co.
Philadelphia Textile Machinery Co.
Smith & Furbush Machine Co.
Textile-Finishing Machinery Co.
**Carrier Aprons.**
Graton & Knight Mfg. Co.
**Castings.**
Decatur Fndry, Furnace & Mch. Co.
Fairbairn, Lawson, Combe, Barbour, Ltd.
Hunter, James, Machine Co.
Lunkenheimer Co., The.
Royersford Foundry & Machine Co.
Schofield, Wm., Co.
**Caustic Soda.**
Wing & Evans.
**Cement Pans.**
Scaife, W. B., & Sons.
**Centrifugal Filters.**
Wayte, W. J., Inc.
**Centrifugal Machines.**
Wayte, W. J., Inc.
**Chain Belts.**
Morse Chain Co.
**Chains, Power Transmission.**
Morse Chain Co. (Silent Driving).
**Chemists.**
Little, Arthur D., Inc.
Lunkenheimer Co., The.
**Chenille Machinery.**
Eppler, John, Machine Works.
**Clocks.**
Pettes & Randall Co.
Watchman's Clock & Supply Co.
**Cloth Boards.**
Chaffee Bros.
Pearson, J. T.
Richardson Brothers.
Textile-Finishing Machinery Co.
**Cloth Cutting Machines.**
Eastman Machine Co.
Firth, William, Co.
Oswego Machine Works.
Weinerth Knitting & Machine Co.
**Cloth Doubling Machinery.**
Curtis & Marble Machine Co.
Parks & Woolson Machine Co.
**Cloth Dryers.**
——See Drying Machinery.

**Alphabetical Index to Advertisers, with page numbers, follows this list.**

**Cloth Expanders.**
Arlington Machine Works.
Birch Bros. Somerville Machine Wks. (Albert Birch, prop.).
Leyland, Thomas, & Co.
Somerville Mach. Wks. (Albert Birch, prop.).

**Cloth Shrinking Machinery.**
Reliance Machine Works.

**Cloth Testers.**
Firth, William.
Perkins, B. F., & Son, Inc.
Scott, H. L., & Co.
Suter, Alfred.

**Cloth Winders.**
Firsching, J. A.
Parks & Woolson Machine Co.

**Clutches.**
American Tool & Machine Co.
Decatur Fndry, Furnace & Mch. Co.
Hunter, James, Machine Co.

**Coal Analysis.**
Little, A. D., Inc.

**Collars (Shaft).**
Royersford Foundry & Machine Co.

**Comb Aprons.**
Graton & Knight Mfg. Co.

**Combs (Wool and Cotton).**
Atkinson, Haserick & Co.
Crompton & Knowles Loom Works.
Entwistle, T. C., Co.
Firth, William, Co.
Hetherington, John & Sons, Ltd.
Hood, R. H., Company.
Leigh & Butler.
Riley, C. E., Company.
Speed & Stephenson.

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Allis-Chalmers Mfg. Co.

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Allis-Chalmers Mfg. Co.
Buffalo Steam Pump Co.
Dodge, C. S.

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U. S. Conditioning & Testing Co.

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Buhlman, A. W.
Manufacturers Machine Co.
Parks & Woolson Machine Co.

**Cones (Paper).**
Am. Textile Specialty Mchy. Co.
Pairpoint Corporation.

**Conveying Systems.**
Buffalo Forge Co.
Sturtevant, B. F., Co.

**Conveyor Belting**
Gandy Belting Co.

**Coolers (Air).**
Power Specialty Co.

**Cop Machinery.**
Eppler, John, Machine Works.

**Cop Spindles.**
American Textile Specialty Co.
Shambow Shuttle Co.

**Cop Tubes.**
Am. Textile Specialty Mchy. Co.
Pairpoint Corporation.
——See Paper Tubes.

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Badger, E. B., & Sons Co.

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Badger, E. B., & Sons Co.
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**Cotton.**
Riley, C. E., Company.
Schwartz, L. H. A., & Co.

**Cotton Dryers.**
——See Drying Machinery.

**Cotton Machinery.**
Am. Textile Specialty Mchy. Co.
Ashworth Bros.
Atkinson, Haserick & Co.
Barber-Colman Co.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cramer, Stuart W.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Dixon Lubricating Saddle Co.
Draper Company.
Elliott & Hall.
Firth, William.
Hetherington, John & Sons, Ltd.
H & B. American Machine Co.
Klauder-Weldon Dyeing Mch. Co.
Leigh & Butler.
Mason Machine Works.
Metallic Drawing Roll Co., The.
Parks & Woolson Machine Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Riley, C. E., Company.
Saco-Lowell Shops.
Schwartz, L. H. A., & Co.
Smith & Furbush Machine Co.
Stafford Co., The.
Tatham, William, Ltd.
Textile-Finishing Machinery Co.
Textile Machinery Co.
Wildman Mfg. Co.

**Cotton Openers and Lappers.**
Atkinson, Haserick & Co.
Firth, William, Co.
Hetherington, John & Sons, Ltd.
H. & B. American Machine Co.
Leigh & Butler.
Potter & Johnston Mch. Co.
Riley, C. E., Company.
Saco-Lowell Shops.

**Cotton Softeners.**
Bosson & Lane.
Harding & Fancourt, Inc.
Seydel Mfg. Co., The.
Wolf, Jacques & Co.

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Firth, William, Co.
Hetherington, John & Sons, Ltd.
Saco-Lowell Shops.
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Tatham, William, Ltd.

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Bond Co., Charles.

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Seydel Mfg. Co., The.

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Crompton & Knowles Loom Works.
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Stafford Co., The.

**Drawing Rolls.**
Hood, R. H., Company.
H. & B. American Machine Co.
Metallic Drawing Roll Co.
Speed & Stephenson.

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Johns-Manville Co., H. W.
Puro Sanitary Drinking Fountain Co.
Rundle-Spence Mfg. Co.

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Morse Chain Co.

**Drop Wires.**
Connecticut Mill Supply Co.

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Birch Bros., Somerville Mach. Wks.
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Kenyon, D. R., & Son.
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Philadelphia Textile Machinery Co.
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Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.).
Sturtevant, B. F., Co.
Textile-Finishing Machinery Co.
Tolhurst Machine Works.

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Buffalo Steam Pump Co.
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Peerless Co.
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Hunter, James, Machine Co.
Hussong Dyeing Machine Co.
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Suter, Alfred.
Textile Finishing Machinery Co.
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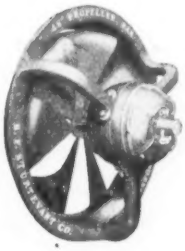

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——See Sizings.
**Finishing Machinery.**
——See Dyeing, Drying, Bleaching and Finishing.
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——See Clutches.
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——See Engines.
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——See Engines, Hoisting.
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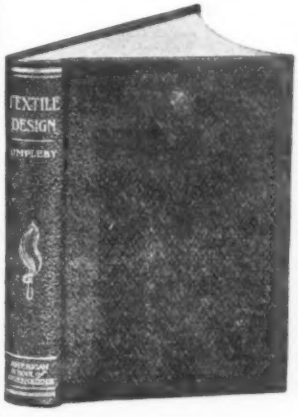


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Johns-Manville Co., H. W.

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Bradley, A. J.

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Dodge, C. S.

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——See Architects and Mill Engineers.

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——See Electric Motors.

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Leigh & Butler.
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——See Engines.

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Lunkenheimer Co.

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Johnson, C. A., & Co.

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**Alphabetical Index to Advertisers, with page numbers, follows this list.**

**Paper Cones and Tubes.**
Am. Textile Specialty Mchy. Co.
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**Pastes (Specialty).**
Pohl Machine Co.
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Dodge, C. S.
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Garland Mfg. Co.
Graton & Knight Mfg. Co.
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Dodge, C. S.
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Cameron Machine Co.
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Parks, G .M., Co.
Scaife, W. B., & Sons.
**Plush Machinery.**
Puhlmann, A. W.
Parks & Woolson Machine Co.
**Pneumatic Conveying.**
——See Ventilating.
**Portable Elevators.**
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N. Y. Revolving Portable Elevator Co.
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Myrick, J. W. H.
**Power Transmission Machinery.**
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S. K. F. Ball Bearing Co.
Textile Finishing Machinery Co.
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Firth, William, Co.
Hetherington, John & Sons, Ltd.
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Leigh & Butler.
Riley, C. E., Company.
Saco-Lowell Shops.
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American Laundry Machinery Co.
Boomer & Boschert Press Co.
Butterworth, H. W., & Sons Co.
Consolidated Hospital Sup. & Laundry Machinery Co.
Craw, J. W., Machinery Co.
Curtis & Marble Machine Co.
Phila. Drying Machinery Co.
Reliance Machine Works.
Saco-Lowell Shops.
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Case Bros., Inc.
Diamond State Fibre Co.
**Press Papers.**
Merwin Paper Co.
Philadelphia Drying Mchy. Co.
Richardson Brothers (Importers and Dealers).
**Printing Machinery.**
Rice, Barton & Fales Mach. & Iron Works.
**Pulley Covering.**
Graton & Knight Mfg. Co.
**Pulleys.**
——See Power Transmission Machinery.
**Pumps.**
Allis-Chalmers Mfg. Co.
Blake-Knowles Steam Pump Works.
Deane Steam Pump Plant.
Buffalo Steam Pump Co.
Gouids Mfg. Co.
Hunt, Rodney, Machine Co.
International Steam Pump Co.
Philadelphia Drying Machinery Co.
Textile-Finishing Machinery Co.
Worthington, Henry R.
**Punches and Dies.**
Royersford Foundry & Machine Co.
**Purifying and Filtration Plants.**
American Water Softener Co.
Hungerford & Terry.
Norwood Engineering Co.
Permutit Co.
Scaife, Wm. B., & Sons.
**Quillers.**
Foster Machine Co.
Payne, G. W., & Co.
Universal Winding Co.
**Rag Pickers.**
Dodge, C. S.
Schofield, Wm., Co.
Smith & Furbush Machine Co.
Tatham, William, Ltd.
**Raw Hide Gears.**
New Process Gear Corporation.
**Reed and Harness Manufacturers.**
American Supply Co.
**Reed Making and Brushing Machines.**
Lavigne & Suter.
**Reed Wire.**
Lavigne & Suter.
**Revolving Portable Elevators.**
N. Y. Revolving Portable Elevator Co.
**Ribbons.**
Cheney Bros.
Macrangie Silk Co.
**Rodent Exterminator.**
Virus Ltd., Inc.
**Roller Bearings.**
Royersford Foundry & Machine Co. (also Babbitted Ring Oiling).
**Roller Covers.**
Graton & Knight Mfg. Co.
**Roofing.**
Barrett Mfg. Co.
Johns-Manville Co., H. W.
**Rope Transmission.**
Cresson-Morris Co.
Hunter, James, Machine Co.
Lambeth Rope Corporation.
**Roving Cans.**
American Vulcanized Fibre Co.
Diamond State Fibre Co.
Hill, James, Mfg. Co.
Standard Fibre Co.
**Roving Reels.**
Scott, H. L., & Co.
**Rub Aprons.**
Graton & Knight Mfg. Co.
**Safety Set Screws.**
Allen Manufacturing Co.
**Sample Cutters.**
Oswego Machine Works.
**Sanitary Fountains.**
Johns-Manville Co., H. W.
Puro Sanitary Drinking Fountain Co.
Rundle-Spence Mfg. Co.
**Sash Operators.**
Drouve Co., G.
**Scales (Automatic).**
American Kron Scale Co.
**Scales.**
National Scale Co.
Torsion Balance Co.
**Scallop Machines.**
Merrow Machine Co.
**Schappe (French Spun).**
Suter, Alfred.
**Schools.**
International Correspondence Schools.
Lowell Textile School.
New Bedford Textile School.
Philadelphia Textile School.
**Scouring Machines.**
——See Wool Washing, Preparing and Drying Machinery.
**Second-hand Machinery.**
——See Mchy. Dealers, also Classified Ads.
**Selling Agent.**
Smiley, Harold R.
**Separators (Yarn).**
Draper Co., The.
H. & B. American Machine Co.
**Sewing Machines and Supplies.**
Arlington Machine Works.
Birch Albert, Somerville Mach. Wks.
Birch Bros., Somerville Mach. Wks.
Curtis & Marble Machine Co.
Dinsmore Mfg. Co.
Fales, L. F.
Somerville Machine Works (Albert Birch, prop.).
Speed & Stephenson.
Spindler, E. O.
Textile Finishing Machinery Co.
Union Special Machine Co.
Wilcox & Gibbs.
**Shafting Hangers, Etc.**
——See Power Transmission Machinery.
**Shafting Rings (Leather).**
Graton & Knight Mfg. Co.
**Shearing Machinery.**
——See Dyeing, Drying, Bleaching and Finishing.
**Sheet Metal Works.**
Scaife, W. B., & Sons.
**Shoddy Pickers.**
Curtis & Marble Machine Co.
Dodge, C. S.
Smith & Furbush Machine Co.
**Shoes.**
——See Dyers' Clogs.
**Shuttles.**
——See Bobbins, Spools, Shuttles, Etc.
**Silk Dryers.**
——See Drying Machinery.
**Silk Machinery.**
Arlington Machine Works.
Atkinson, Haserick & Co.
Bunlmann, A. W.
Butterworth, H. W., & Sons Co.
Crompton & Knowles Loom Works.
Leigh & Butler.
Mason Machine Works.
Schwartz, L. H. A., & Co.
Suter, Alfred.
Textile-Finishing Machinery Co.
**Silk Mill Supplies.**
Hall, I. A., & Co.
**Silk Noils.**
Fawcett, Hughes.
**Silk Paste.**
Pohl Machine Co.
**Silks (Raw).**
Villa, A. P., & Bros.
**Silk Throwsters.**
Villa, A. P., & Bros.
**Singe Plates.**
Butterworth, H. W., Sons Co.
Taunton-New Bedford Copper Co.
Textile-Finishing Machinery Co.
**Singeing Machines.**
Birch Bros., Somerville Mach. Wks.
Butterworth, H. W., Sons Co.
Curtis & Marble Machine Co.
Leigh & Butler.
Philadelphia Drying Machinery Co.
Smith, Drum & Co.
Textile-Finishing Machinery Co.
**Sizing, Starch and Gums.**
American Diamalt Co.
Arabol Manufacturing Co.
Corn Products Refining Co.
Keever Starch Co.
Malt-Diastase Co.
Seydel Mfg. Co., The.
Stein, Hirsh & Co.

**Alphabetical Index to Advertisers, with page numbers, follows this list.**

Wolf, Jacques & Co.
Worden Chemical Works.

**Skein Mercerizing Machines.**
Buhlmann, A. W.

**Skylights.**
Drouve Co., G.
Van Noorden, E., & Co.

**Slashers.**
Leigh & Butler.
Riley, C. E., Company.
Saco-Lowell Shops.
Textile-Finishing Machinery Co.

**Slitting and Rewinding Machines.**
Cameron Machine Co.

**Soaps.**
Antiseptol Liquid Soap Co.
Dobbins Soap Mfg. Co.
Draper, J. O., Co.
Seydel Mfg. Co., The.
Wrisley, Allen B., Co.

**Soaping Machines.**
Hunt, Rodney, Machine Co.

**Softeners.**
——See Cotton Softeners.

**Spindles.**
Atkinson, Haserick & Co.
Bamford & Smith.
Bodden, Wm., & Son, Ltd.
Buckley's, Benjamin, Sons.
Draper Company.
H. & B. American Machine Co.
Leigh & Butler.
Riley, C. E., Company.
Speed & Stephenson.

**Spindle Tubes.**
Atkinson, Haserick & Co.
Bamford & Smith.
Firth, William, Co.
Riley, C. E., Company.
Speed & Stephenson.

**Spinning Frames.**
Fairbairn, Lawson, Combe, Barbour, Ltd.

**Spinning Frame Saddles.**
Dixon Lubricating Saddle Co.

**Spinning Rings.**
Draper Company.
H. & B. American Machine Co.
Whitinsville Spinning Ring Co.

**Spinning Tubes.**
Buckley's, Benjamin, Sons.
Speed and Stephenson.

**Spools.**
——See Bobbins, Spools, Shuttles, Etc.

**Spoolers.**
Allen, A. W.
Draper Company.
Lindsay, Hyde & Co.
Payne, George W., & Co.
Saco-Lowell Shops.
Speed & Stephenson.
Smith & Furbush Machine Co.
Spindler, E. O.

**Spot and Stain Removing Machine.**
Sanitex Co., The.

**Springs.**
Hamilton, Thomas.

**Sprockets, Silent Chain.**
Morse Chain Co.

**Stacks.**
Scaife, W. B., & Sons.

**Stain Remover.**
Oilsgo Co.

**Steam Rollers.**
Scaife, W. B., & Sons.

**Steam Engines.**
——See Engines.

**Steam Jacket Kettles.**
Badger, E. B., & Sons Co.
Butterworth, H. W., & Sons Co.
Textile-Finishing Machinery Co.

**Steam Pumps.**
Blake & Knowles Steam Pump Works.
Buffalo Steam Pump Co.
Deane Steam Pump Plant.
Goulds Manufacturing Co., The.
International Steam Pump Co.
Worthington, Henry R.

**Steam Specialties.**
Butterworth, H. W., & Sons Co.
Lunkenheimer Co., The.
Powell, Wm., Co.
Sargent's Sons, C. G., Corp.
Sturtevant, B. F., Co.
Textile-Finishing Machinery Co.

**Steam Traps.**
Sturtevant, B. F., Co.

**Steam Turbines.**
Allis-Chalmers Mfg. Co.
Buffalo Forge Co.
Buffalo Steam Pump Co.
General Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

**Stencil Machines.**
Bradley, A. J.

**Stock Dryers.**
——See Drying Machinery.

**Stocking Dryers.**
——See Drying Machinery.

**Stop Motion for Knitting Machines.**
Boss Knitting Machine Works.
Crawford Manufacturing Co.

**Stop Motion for Looms.**
——See Warp Stop Motions.

**Strappings (Leather).**
Graton & Knight Mfg. Co.

**Superheaters, Foster.**
Power Specialty Co.

**Tanks, Tubs and Vats.**
Hall, Amos H., Son & Co.
Klauder-Weldon Dyeing Mach. Co.
New England Tank & Tower Co.
Textile-Finishing Machinery Co.
Tolhurst Machine Works.
Scaife, W. B., & Sons.
Stearns, A. T., Lumber Co.
Woolford, G., Tank Mfg. Co.

**Tapes, Braids and Edgings.**
Barton, F. C.
Bias Narrow Fabric Co.
Friedberger-Aaron Mfg. Co.
Industrial Tape Mills Co.
Jenkins, E. Wheeler.
Krout & Fite Mfg. Co.
Lambeth Rope Corporation.
Macungie Silk Co.
Maurer, F. W., & Sons Co.
Weimar Bros.

**Teasels.**
Suter, Alfred.

**Telephones (Interior Systems).**
Pettes & Randall Co.

**Temples.**
Draper Co.

**Testing Apparatus.**
Perkins, B. F., & Son, Inc.
Scott, H. L., & Co.
Torsion Balance Co.

**Textile Chemists.**
Little, A. D., Inc.

**Textile Engineers.**
Buhlmann, A. W.
Myrick, J. W. H.
Suter, Alfred.
——See also Architects and Mill Engineers.

**Textile Schools.**
——See Schools.

**Thread Guides.**
Palmer, I. E., Co.

**Time Detectors.**
Pettes & Randall.
Watchman's Clock & Supply Co.

**Time Recorders.**
International Time Recording Co.
Pettes & Randall.

**Tiering Machines.**
Economy Engineering Co.
N. Y. Revolving Portable Elevator Co.

**Tinsel Machinery.**
Eppler, John, Machine Works.

**Tools for Turning Calender Rolls.**
Dickinson, Thomas L.

**Top Cutting Machines.**
Wildman Mfg. Co.

**Trade Mark Law.**
Crosby & Gregory.
Heard, Smith & Tennant.

**Trade Mark Stamps.**
Kaumagraph Company.

**Trademarking Machinery.**
Parks & Woolson Machine Co.

**Trucks.**
Bailey, Frank.
Diamond State Fibre Co.
Lane & Bro., W. T.
National Scale Co.
Standard Fibre Co.

**Trucks, Motor.**
Kissel Motor Car Co.
Pierce Arrow Motor Car Co.

**Tubes.**
Pairpoint Corporation.
Standard Fibre Co.

**Tubs.**
——See Tanks, Tubs and Vats.

**Turbines.**
——See Water Wheels and Steam Turbines.

**Twine.**
Moore, C., & Co.
Richardson Bros.

**Twist Counters.**
Firth, William.
Scott, H. L., & Co.
Speed & Stephenson.
Suter, Alfred.

**Twisting Machinery.**
Hetherington, John & Sons, Ltd.
Saco-Lowell Shops.
Smith & Furbush Machine Co.
Speed & Stephenson.

**Underwear Press.**
Craw, J. W., Machinery Co.
U. S. Hoffman Co.

**Vacuum Extracting Machines.**
Buhlmann, A. W.

**Valves.**
Lunkenheimer Co.
Powell, Wm., Co.

**Valves (Rubber).**
Johns-Manville Co., H. W.

**Variable Speed Transmission.**
Hunter, James, Machine Co.
Reeves Pulley Co.

**Vats.**
——See Tanks, Tubs and Vats.

**Velvet Machinery.**
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Parks & Woolson Machine Co.
Schwartz, L. H. A., & Co.
Textile Finishing Machinery Co.

**Veneer Boxes.**
Veneer Products Co.

**Ventilating Apparatus.**
American Moistening Co.
Autoforce Ventilating System.
Berry, A. Hun.
Buffalo Forge Co.
Buffalo Steam Pump Co.
Carrier Air Conditioning Co. of America.
Crocker-Wheeler Co.
General Electric Co.
Parks, G. M., Co.
Perkins, B. F., & Son, Inc.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Sturtevant, B. F., Co.
Tolhurst Machine Works.

**Ventilating Engineer.**
Myrick, J. W. H.

**Vulcanized Fibre.**
American Vulcanized Fibre Co.
Diamond State Fibre Co.
Hill, James.
Standard Fibre Co.

**Wadding Machinery.**
Tatham, William, Ltd.

**Warpers.**
Crompton & Knowles Loom Works.
Draper Company.
Entwistle, T. C., Co. (Ball) (Beam).
Saco-Lowell Shops.
Smith & Furbush Machine Co.

**Warping and Beaming Machinery.**
Altemus, J. K.
Crompton & Knowles Loom Works.
Draper Company.
Entwistle, T. C., Co.
Lever, Oswald, Co.
Smith & Furbush Machine Co.
Suter, Alfred.

**Warp Stop Motions.**
Crompton & Knowles Loom Works.
Draper Company.
Mossberg Wrench Co.

**Warp Tying Machines.**
Barber-Colman Co.

**Washers (Cloth).**
American Laundry Machinery Co.
Arlington Machine Works.
Birch, Albert, Somerville Machine Works.
Birch Bros., Somerville Mach. Wks.
Butterworth, H. W., & Sons Co.
Hunt, Rodney, Machine Co.
Hunter, James, Machine Co.
Kenyon, D. R., & Son.
Philadelphia Drying Machinery Co.

**Alphabetical Index to Advertisers, with page numbers, follows this list.**

Somerville Machine Works (Albert Birch, prop.).
Textile-Finishing Machinery Co.

**Washers (Leather).**
Graton & Knight Mfg. Co.

**Washing Soda.**
Ford, J. B., Co.

**Waste Reclaiming Machinery.**
Hetherington, John & Sons, Ltd.
Saco-Lowell Shops.
Smith & Furbush Machine Co.
Tatham, William, Ltd.

**Waste Washing Machines.**
American Tool & Machine Co.
Tatham, William, Ltd.

**Watchman's Clocks.**
Pettes & Randall Co.
Watchman's Clock and Supply Co.

**Water Chemists.**
American Water Softener Co.
Hungerford & Terry.
Permutit Co.
Scaife, W. B., & Sons Co.

**Waterproofing Materials.**
Barrett Mfg. Co.
Johns-Manville Co., H. W.
Stocker, F. William, Inc.

**Water Purifiers and Filters.**
American Water Softener Co.
Hungerford & Terry.
International Filter Co.
Permutit Co.
Scaife, W. B., & Sons Co.

**Water Softeners.**
American Water Softener Co.
Ford, J. B., Co.
Hungerford & Terry.
International Filter Co.
Norwood Engineering Co.
Permutit Co.
Scaife, W. B., & Sons Co.

**Water Towers.**
New England Tank & Tower Co.

**Water Wheel Governors.**
Hunt, Rodney, Machine Co.

**Water Wheels.**
Allis-Chalmers.
Hunt, Rodney, Machine Co.
Leffel, James & Co.

**Weighing Apparatus.**
American Iron Scale Co.

**Winders (Cotton, Woolen and Worsted).**
Allen, A. W.
Altemus, J. K.
Buhlmann, A. W.
Crompton & Knowles Loom Works.
Firsching, J. A.
Foster Machine Co.
Leigh & Butler.
Lever, Oswald Co.
Lindsay, Hyde & Co.
Payne, Geo. W., & Co.
Saco-Lowell Shops.
Smith & Furbush Machine Co.
Universal Winding Co.

**Winders (Back).**
Allen, A. W.

**Winders (Hosiery).**
Allen, A. W.
Altemus, Jacob K.
Foster Machine Co.
Leighton Machine Co.
Lever, Oswald, Co., Inc.
Payne, G. W., & Co.
Saco-Lowell Shops.
Spindler, E. O.
Universal Winding Co.

**Wire Specialties.**
Connecticut Mill Supply Co.
Hamilton, Thomas.

**Wool.**
Atkinson, Haserick & Co.

**Wool Bagging Machines.**
Dodge, C. S.

**Wool Cleaning Compound.**
Ford, J. B., Co.

**Wool Combing Machinery.**
Atkinson, Haserick & Co.
Crompton & Knowles Loom Works.
Leigh & Butler.
Riley, C. E., Company.
Speed & Stephenson.

**Wool Dryers.**
——See Drying Machinery.

**Wool Oil Compound.**
Marston, John P.

**Wool and Waste Dusters.**
Dodge, C. S.
Leigh & Butler.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Smith & Furbush Machine Co.

**Woolen and Worsted Machinery.**
Altemus, Jacob K.
American Tool & Machine Co.
Arlington Machine Works.
Atkinson, Haserick & Co.
Birch, Albert, Somerville Machine Works.
Birch Bros., Somerville Mach. Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Fales, L. F.
Firth, William.
Hetherington, John & Sons, Ltd.
Hood, R. H., Co.
Hunt, Rodney, Machine Co.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Mach. Co.
Leigh & Butler.
Parks & Woolson Machine Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Riley, C. E., Company.
Saco-Lowell Shops.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Schwartz, L. H. A., & Co.
Smith & Furbush Machine Co.
Somerville Machine Works (Albert Birch, prop.).
Speed & Stephenson.
Textile-Finishing Machinery Co.

**Wool Oils.**
Borne, Scrymser Co.
Seydel Mfg. Co.

**Wool Washing, Preparing and Drying Machinery.**
Atkinson, Haserick & Co.
Hunter, Jas., Machine Co.
Leigh & Butler.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Riley, C. E., Company.
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
Smith & Furbush Machine Co.
Speed & Stephenson.
Tolhurst Machine Works.

**Yardnumbering Machinery.**
Parks & Woolson Machine Co.

**Yarn Conditioning Machines.**
Sargent's, C. G., Sons.
Suter, Alfred.

**Yarn Dryers.**
——See Drying Machinery.

**Yarn Testers.**
Birch Bros., Somerville Mach. Wks.
Firth, William.
Scott, H. L., & Co.
Speed & Stephenson.
Suter, Alfred.
Torsion Balance Co., The.

## YARNS, THREADS, ETC.

**Carpet Yarns.**
Lees, Jas., & Sons Co.

**Cotton Yarns.**
Florence Thread Co.
Jamieson, Jas. B.
Jenckes Spinning Co.
Jenkins, E. Wheeler.
Littauer, Ludwig.
Mindlin & Rosenman.
Mitchell, Jas. E., & Co.
Montgomery, J. R., Co.
Monument Mills.
Orswell Mills.
Porter, T. J., & Sons.
Sternberg, Fred, & Co.
Street, J. F., & Co.
Whitman, William, Co.

**Flax, Hemp, Jute and Ramie.**
Fawcett, Hughes.
Littauer, Ludwig.
Mindlin & Rosenman.
Porter, T. J., & Sons.
Ramie Agency.
Sternberg, Fred, & Co.

**Gassed Yarns.**
Florence Thread Co.
Jamieson, Jas. B.
Littauer, Ludwig.
Mindlin & Rosenman.
Sternberg, Fred, & Co.
Whitman, William, Co.

**Glazed Yarns.**
Florence Thread Co.
Jamieson, Jas. B.
Littauer, Ludwig.
Mindlin & Rosenman.
Orswell Mills.
Sternberg, Fred & Co.
Whitman, William Co.

**Harness Twine.**
Fawcette, Hughes.
Moore, C., & Co.
Sternberg, Fred, & Co.

**Hosiery and Knitting Yarns.**
Florence Thread Co.
Hyde, E. S.
Jenckes Spinning Co.
Littauer, Ludwig.
Mindlin & Rosenman.
Mitchell, Jas. E., & Co.
Monument Mills.
Porter, T. J., & Sons.
Sternberg, Fred, & Co.
Whitman, William, Co.

**Linen Yarns.**
Fawcett, Hughes.
Lindsay, Thompson & Co., Ltd.
Porter, T. J., & Sons.

**Mercerized Yarns.**
Aberfoyle Mfg. Co.
American Silk Spinning Co.
Cascami Silk Spinning Co. of America.
Florence Thread Co.
Jamieson, Jas. B.
Littauer, Ludwig.
Mindlin & Rosenman.
Porter, T. J., & Sons.
Sternberg, Fred, & Co.
Whitman, William, Co.

**Mohair Yarns.**
Littauer, Ludwig.
Mindlin & Rosenman.
Montgomery, J. R., Co.
Whitman, William, Co.

**Novelty Yarns, Tinsels, Silk Noils, Etc.**
American Silk Spinning Co.
Cascami Silk Spinning Co. of America.
Jamieson, Jas. B.
Jenckes Spinning Co.
Littauer, Ludwig.
Mindlin & Rosenman.
Montgomery, J. R., Co.
Nonotuck Silk Co.
Sternberg, Fred, & Co.
Villa, Stearns & Co.

**Silk Yarns.**
American Silk Spinning Co.
Cascami Silk Spinning Co. of America.
Cheney Bros.
Nonotuck Silk Co.
Ryle, Wm., & Co.
Sauquoit Silk Mfg. Co.
Street, J. F., & Co.
Suter, Alfred.
Villa, Stearns & Co.

**Silk Yarns (Artificial).**
Littauer, Ludwig.
Mindlin & Rosenman.

**Woolen and Merino Yarns.**
Eaton Rapids Woolen Mills.
Hyde, E. S.
Jenckes Spinning Co.
Littauer, Ludwig.
Mindlin & Rosenman.
Shirley, Harold R.
Street, J. F., & Co.

**Woolen Yarns.**
Jamieson, Jas. B.
Lees, Jas., & Sons Co.
Littauer, Ludwig.
Mindlin & Rosenman.
Shirley, Harold R.

**Worsed Yarns.**
Lees, Jas., & Sons Co.
Littauer, Ludwig.
Mindlin & Rosenman.
Shirley, Harold R.
Whitman, William, Co.

**Alphabetical Index to Advertisers, with page numbers, follows this list.**

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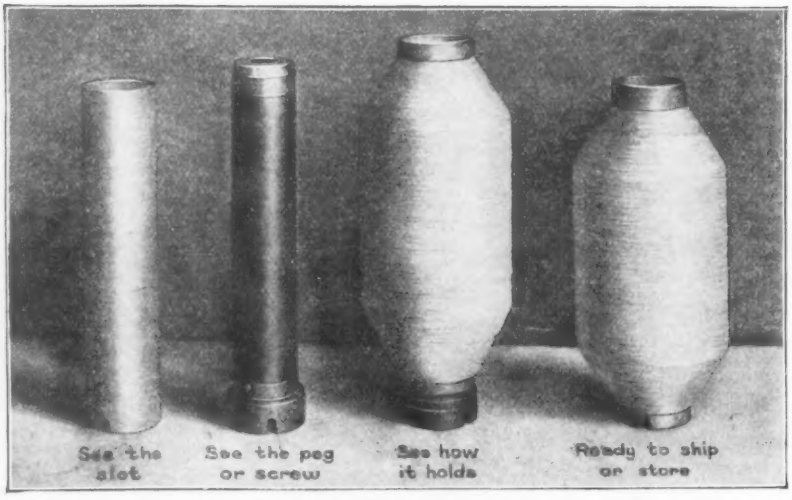


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President

CLARENCE A. COOK
Treasurer

THOMAS A. TRIPP
Gen. Manager

# Alphabetical Index to Advertisers


Aberfoyle Mfg. Co. ..... 280b
Acme Ktg. Mch. & Needle Co. 331
Ainslie Knitting Machine Co. .. 332
Allen, A. W. ..... 48
Allen Mfg. Co. ..... 285
Allis-Chalmers Mfg. Co. ..... 303
Altemus, Jacob K. ..... 38
American Crayon Co. ..... 264
American Diamalt Co. ..... 308
American Dyewood Co. ..... 275
American Kron Scale Co. ..... —
American Laundry Machy. Co. .. 42
American Moistening Co. ..... 53-239
American Pulley Co., The ..... 264
American Silk Spinning Co. .... 294
American Supply Co. ..... 268
Am. Textile Specialty Mchy. Co. 15
American Tool & Machine Co. .. 241
American Vulcanized Fibre Co. 60
American Water Softener Co. .. 309
Antiseptol Liquid Soap Co. ..... 43
Arabol Manufacturing Co., The 307
Arlington Machine Works ..... 266
Ashworth Bros. ..... 302
Atkinson, Haserick & Co. ..... 270
Atteaux, F. E. & Co. ..... 309
Autoforce Ventilating System .. 242

Badger, E. B., & Sons Co. ..... 287
Badische Company ..... 64
Bailey, Frank ..... 309
Bamford & Smith ..... 266
Barber-Colman Co. ..... 264-286
Barrett Manufacturing Co. ..... 300
Barton, F. C. ..... 291
Bayer Co., The, Inc. ..... 313
Beckley Perforating Co. ..... 291
Berlin Aniline Works ..... 308
Berry, A. Hun ..... 57
Bias Narrow Fabric Co. ..... 291
Birch, Albert ..... 44
Birch Bros. ..... 44
Bischoff, C., & Co. ..... 313
Blake & Knowles Steam Pump Works ..... 60
Bodden, Wm., & Son, Ltd. ..... 52
Bond, Charles, Co. ..... 291
Boomer & Boschert Press Co. .. 286
Borgner, Cyrus, Co. ..... 311
Borne, Scrymser Co. ..... 36
Boss Knitting Machine Works.. 330
Bosson & Lane ..... 306
Boston Belting Co. ..... 40
Bradley, A. J. ..... 296
Breedon's, Son, Wm. ..... 335
Brinton, H., & Co. ..... 329
Broadbent, Thomas, & Sons .... 225
Brophy's Sons, T. ..... 310
Brown's, Wm., Sons ..... 311
Buckley's, Benj., Son ..... 270
Buffalo Forge Co. ..... 49
Buffalo Steam Pump Co. ..... —
Buhlmann, A. W. ..... 54
Bukey Service ..... 243
Butterworth, H. W., & Sons Co. 1

Calmore & Co. ..... 242
Cameron Machine Co. ..... 16b
Carrier Air Conditioning Co. of America ..... —
Cascami Silk Spinning Co. of America ..... 296
Case Brothers ..... 335
Cassella Color Co. ..... 306
Chaffee, Thomas K., Co. ..... 62
Chaffee Bros.' Company ..... 268
Cheney Bros. ..... 292
Claes & Flentje ..... 332
Conant, J. E., & Co. ..... 26
Connecticut Mill Supply Co. .... 262
Consolidated Hospital Supply & Laundry Machinery Co. ..... 266
Continental Latch Needle Co. .. 334
Cooper, Charles ..... 322
Cooper Hewitt Electric Co. ..... —
Corn Products Refining Co. ..... 18
Cramer, Stuart W. ..... 20
Crane Mfg. Co. ..... 321
Craw, J. W., Machinery Co. .... 334
Crawford Manufacturing Co. .... 331
Cresson-Morris Co. ..... 58
Crocker-Wheeler Co. ..... 60
Crompton & Knowles Loom Works ..... 16
Crosby & Gregory ..... 242
Curtis & Marble Machine Co. ... 285

Davidson, John F. ..... 310
Deane Steam Pump Plant ..... —
Decatur Foundry, Furnace & Machine Co. ..... 268
Diamond State Fibre Co. ..... 264
Dickinson, Thomas L. ..... 270
Dinsmore Mfg. Co. ..... 57
Dixon Lubricating Saddle Co. .. 268
Dobbins Soap Mfg. Co. ..... 286
Dodge, C. S. ..... 295
Domestic Machinery Works ..... 335
Draper Company ..... 2-3
Draper, J. O., Co. ..... 290
Dronsfield Bros., Ltd. ..... 264
Drouve, G., Co. ..... 59
Durant Mfg. Co. ..... 287
Dyer, W. E. S. ..... 242

Eastman Machine Co. Outside Back Cover
Eaton Rapids Woolen Mills ..... 291
Economy Engineering Co. ..... 268
Electro Bleaching Gas Co. ..... 313
Elliott & Hall ..... 270
Entwistle Co., T. C. ..... 37
Epler, John, Machine Works ... 334
Eureka Fire Hose Mfg. Co. ..... 333
Evans Friction Cone Co. ..... 285
Excelsior Needle Co. ..... 335

Fairbairn, Lawson, Combe, Barbour, Ltd. ..... 44
Fales, L. F. ..... 331
Farbwerke-Hoechst Co. ..... 307
Fawcett, Hughes ..... 284
Ferguson, John W. ..... 242
Firsching, Joseph A. ..... 333
Firth, William ..... 33
Florence Thread Co. ..... 284
Ford, J. B., Co. ..... 274
Foster Machine Co. ..... 4
Fraser, Douglas & Sons, Ltd. .. 61
Friedberger-Aaron Mfg. Co. .... 328

Gandy Belting Co. ..... 59
Garland Mfg. Co. ..... 278
Geisenheimer & Co. ..... 311
General Electric Co. Inside Back Cover
Gerry, Geo. W., & Son ..... —
Giles Dyeing Mch. Co., John H. 55
Globe Dye Works Co. ..... 310
Gormly, Robert W., & Co. ..... 333
Goulds Mfg. Co. ..... 51
Graphite Lubricating Co. ..... 280a
Graton & Knight Mfg. Co. ..... 24

Hall, Amos H., Son & Co. ..... 312
Hall, I. A., & Co. ..... 296
Halton's, Thomas, Sons ..... 52
Hamilton, Thomas ..... 335
H. & B. American Machine Co. 66
Harding & Fancourt, Inc. ..... 244
Heard-Smith & Tennant ..... 242
Heathcote, John, & Son ..... 61
Hemphill Mfg. Co. ..... 317
Hepworth, John W., & Co. ..... 327
Hetherington, John & Sons, Ltd. 28
Hill, James, Mfg. Co. ..... 57
Hodgson, Walter W. ..... 270
Home Bleach & Dye Works 306, 310
Home Insurance Co. ..... 298
Hood, R. H., Company ..... 268
Hopkinson Dyeing & Textile Works ..... 310
Hungerford & Terry ..... 314
Hunt, Rodney, Machine Co. ..... 54
Hunter, Jas., Machine Co. ..... 14
Hussong Dyeing Machine Co. ... —
Hyde, Edward S. ..... 290

India Alkali Works ..... 270
Industrial Moving Picture Co. .. 278
Industrial Tape Mills Co. ..... 284
Innis Speiden & Co. ..... 313
International Cor. Schools ..... 310
International Filter Co. ..... 311
International Pulp Co. ..... 302
Ives, L. T., Co. ..... 335

Jamieson, J. B. ..... 290
Jenckes Knitting Mch. Co. ..... 327
Jenckes Spinning Co. ..... 284
Jenkins, E. Wheeler ..... 231
Johns-Manville Co., H. W. ..... 49
Johnson, Chas. A., & Co. ..... 310
Jones & Hardy, Inc. ..... 333

Kalle Color & Chemical Co., Inc. 308
Kaumagraph Company ..... 270
Keever Starch Co. ..... 299
Kemp, C. M., Manufacturing Co. 45
Kenyon, D. R., & Son ..... 262
Keystone Latch Needle Co. ..... 335
Kissel Motor Car Co. ..... 51
Klauder-Weldon Dyeing Mch. Co. 226
Klipstein, A., & Co. ..... 311
Krout & Fite Mfg. Co. ..... 284
Kunze, Otto ..... 283

Lamb Knitting Machine Co. ..... 316
Lambeth Rope Corporation ..... 283
Lane, W. T., & Bro. ..... 22
Lees, James, & Sons Co. ..... 290
Leffel, James, & Co. ..... 61
Leigh & Butler ..... 6
Leighton Machine Co. ..... 323
Lever, Oswald Co., Inc. ..... 43
Leyland, Thomas & Co. ..... 17
Lindsay, Hyde & Co. ..... 283
Littauer, Ludwig ..... 296
Little, Arthur D., Inc. ..... 243
Lowell Crayon Co. ..... 296
Lowell Textile School ..... 331
Lunkenheimer Co. ..... 45

Macungie Silk Co. ..... 296
Main, Chas. T. ..... 243
Malt-Diastase Co. ..... 312
Manufacturers Machine Co. ..... 60
Mason Brush Works ..... 297
Mason Machine Works ..... 8
Maurer, F. W., & Sons Co. ..... 284
Merrow Machine Co. ..... 328
Merwin Paper Co. ..... 282
Metallic Drawing Roll Co. ..... 280
Mindlin & Rosenman ..... 294
Mitchell Co., Jas. E. ..... 283
Montgomery, J. R., Co. ..... 282
Monument Mills ..... 282
Moore, C., & Co. ..... 283
Morse Chain Company ..... 7
Mossberg Wrench Co. ..... 46
Munn & Co. ..... 243
Myrick, J. W. H. ..... 242

National Laundry Mchy. Co. ..... 315
National Scale Co. ..... 46
National Silk Dyeing Co. ..... 292
New Bedford Textile School ..... 315
New England Butt Co. ..... 330
New Eng. Tank & Tower Co. ..... 314
New Process Gear Corporation ..... 23
N. Y. & N. J. Lubricant Co. ..... 303
New York Revolving Portable Elevator Co. ..... 59
Nonotuck Silk Co. ..... 282
Norwood Engineering Co. ..... 314
Nye & Tredick Company ..... 320

Old Colony Foundry & Fence Co. ..... 262
Orswell Mills ..... 284
Oswego Machine Works ..... 32
Otis Elevator Co. ..... 31

Pairpoint Corporation, The ..... 226
Palmer, I. E., Co. ..... 58
Paramount Metal Form Drying Co. ..... 42
Parks, G. M., Co. ..... 10-11
Parks & Woolson Machine Co. ..... 270
Paxton & O'Neill ..... 326
Payne, Geo. W., Co. ..... 332
Pearson, Jos. T. ..... 325
Peerless Company, The ..... 310
Perkins, B. F., & Sons, Inc. ..... 56
Permutit Co. ..... 55
Pettes & Randall Co. ..... 296
Pierce-Arrow Motor Car Co. ..... —
Philadelphia Drying Mchy. Co. 16a
Philadelphia Textile Mchy. Co. ..... 336
Philadelphia Textile School ..... 315
Porter, T. J., & Sons ..... 284
Powell, Wm., Co. ..... 58
Power Specialty Co. ..... 266
Puro Sanitary Drinking Fountain Co. ..... 273

Ramie Agency ..... 284
Reece Button-Hole Machine Co. 324
Reeves Pulley Co. ..... 56
Reliance Machine Works ..... 54-57
Rice, Barton & Fales Machine & Iron Co. ..... 48
Richardson Bros. ..... 308
Ridgway, Craig & Son Co. ..... 276
Riera, Pedro Sobre ..... 302
Riley, C. E., Company ..... 225
Roessler & Hasslacher Chemical Co. ..... 276
Root, C. J., Co. ..... 50
Royersford Fndry. & Mch. Co. ..... 47
Rundle-Spence Mfg. Co. ..... 55
Ryle, William, & Co. ..... 294

Saco-Lowell Shops ..... 5
Salem Elevator Works ..... 53
Sanitex Co., The ..... 291
Sargent's, C. G., Sons Co. ..... 13
Sauquoit Silk Mfg. Co. ..... 293
Scaife, W. B., & Sons Co. ..... 311
Schaum & Uhlinger, Inc. ..... 47
Schieren, Chas. A., Co. ..... 27
Schofield, William, Co. ..... 268
Schwartz, L. H. A., & Co. ..... —
Scott, Henry L., & Co. ..... 260
Scott & Williams, Inc. ..... 248
Sellers, Wm., & Co. ..... 53
Seydel Manufacturing Co. Outside Back Cover
Shambow Shuttle Co. ..... 41
Shirley, Harold R. ..... 290
Shoemaker, J. L., & Co. ..... 332
S. K. F. Ball Bearing Co. ..... 12
Smith, Drum & Co. ..... 41
Smith & Furbush Mch. Co. ..... 288
Somerville Machine Works ..... 44
Speed & Stephenson ..... 30
Spence & Rideout ..... 334
Spindler, E. O. ..... 326
Stafford Co., The ..... 34, 35
Stafford & Holt ..... 329
Standard Fibre Co. ..... 50
Standard Machine Co. ..... 333
Stearns, A. T., Lumber Co. ..... 312
Steel Heddle Mfg. Co. ..... 29
Stein, Hirsch & Co. ..... 308
Stephenson Mfg. Co. ..... 58
Sternberg, Fred, & Co. ..... 283
Stocker, F., William, Inc. ..... 262
Street, J. F., & Co. ..... 283
Sturtevant, B. F., Co. ..... 229
Suter, Alfred ..... 280
Sykes, Walter F., & Co. ..... 308

Tatham, William, Ltd. ..... 59
Taunton-New Bedford Copper Co. ..... 310
Tebbets, E. L., Spool Co. ..... 268
Textile-Finishing Machinery Co. Inside Front Cover
Textile Machine Works ..... 330
Thayer, Edward M., & Co. ..... 308
Thompson, Lindsay, & Co., Ltd. 284
Tolhurst Machine Works ..... 52
Tompkins Bros. Co. ..... 332
Torsion Balance Co. ..... 287

Uniform Dyeing Machine Co. ..... 56
Union Button Sewing Co. ..... 330
Union Special Machine Co. ..... 325
United States Conditioning & Testing Co. ..... 296
U. S. Gutta Percha Paint Co. ..... 9
U. S. Hoffman Co. ..... 226
Universal Winding Co. Outside Back Cover
Utica Willowvale Bleaching Co. 304

Van Noorden, E., & Co. ..... 266
Veneer Products Co. ..... 39
Villa, A. P., & Bros. ..... 295
Villa, Stearns Co. ..... 293
Virus Limited, Inc. ..... 297

Walther, Otto ..... 319
Waldwell Needle Co. ..... 335
Watchman's Clock & Supply Co. 270
Wayte, W. J., Inc. ..... 21
Weimar Bros. ..... 284
Westinghouse El. & Mfg. Co. ..... 19
Westinghouse Lamp Co. ..... 25
Whitinsville Spinning Ring Co. 61
Whitman, William, Co. ..... 290
Whiton, D. E., Machine Co. ..... 266
Wildman Mfg. Co. ..... 250
Willcox & Gibbs Sewing Machine Co. ..... 318
Williams, I. B., & Sons ..... 336
Wing & Evans, Inc. ..... 309
Wolf, Jacques & Co. ..... 313
Woolford, G., Wood Tank Mfg. Co. ..... 312
Worden Chemical Works ..... 270
Worthington, Henry R. ..... —
Wright Wire Co. ..... 50
Wrisley, Allen B., Co. ..... 311

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# Publishers' Page

### Concerning This Issue

This is an unusual number of the Textile World Record. Generally we have a Convention number in April and May or May and June, each year. This year, however, the dates of the Conventions are such that several are reported in this one issue, including the Machinery Exhibition held in conjunction with the National Association of Hosiery and Underwear Manufacturers meeting in Philadelphia. See "Table of Contents" and front cover for complete list of Conventions.

However, it is not only on account of the text matter that this number is remarkable. It should be of special interest to all our subscribers because of the large number of advertisements, including both old and new advertisers, many of whom have special announcements in this issue.

The news that these manufacturers have to convey to mill men is of vital importance to the practical manufacturer who wants to keep in touch with all that is new in the textile machinery and mill equipment line.

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—÷—

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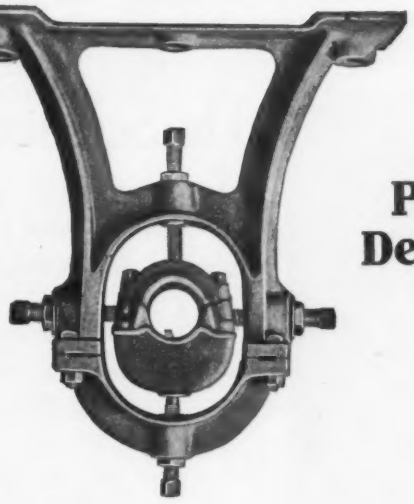

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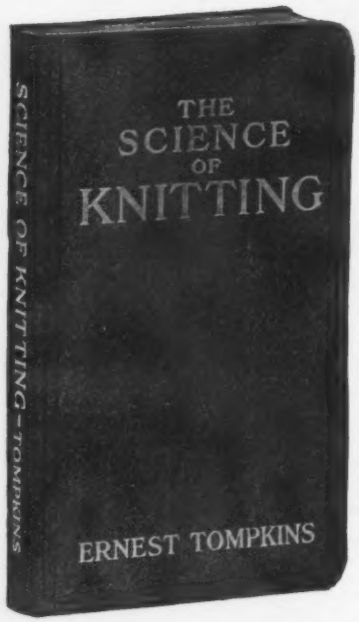


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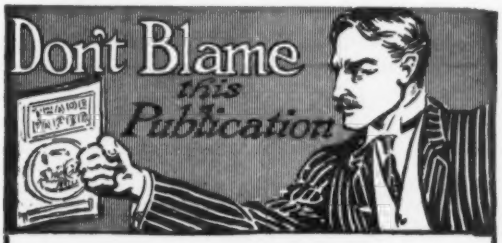


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4-22

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Well organized Knitting Mill; 160,000 square feet floor space; completely equipped with Thompson Brothers' Machines to turn out Balbriggan garments and Cooper Spring Needle Machines for Union Suits, and also all other machinery necessary for the conduction of business. Large volume of Balbriggan business to be turned over with premises. Present owner not acquainted with line of business. Address J. J. White, 104 E. 40th St., New York City.

# Fine Opening for Practical Mill Man

A textile mill having an equipment of jacquard and harness looms (from 54 to 90 inch widths) which have been used in making a product for which there is not now a demand, wants to put this machinery to new uses.

If you have original ideas and can suggest and carry out a plan for adapting this machinery to the manufacture of some other product for which a ready market can be found we want to get in touch with you.

This is an exceptional opportunity and the right man may be given an interest in the business if he can submit a proposition that looks feasible.

Replies held in strictest confidence and will be returned if desired.

For other particulars and interview address "Original," care of Textile World Record, Boston, Mass.

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**WANTED: POSITION**

## As Wadding Mill Manager

Any Company thinking about going into the Wadding business will find it of interest to consult me first. I have had fifteen years experience with Independent Wadding Companies in Massachusetts, Rhode Island, Tennessee, Alabama and Georgia. I have all the plans and specifications to start a Wadding Mill from the foundation of the building to the manufacturing of the finished product, and can furnish the very best of references. For further information address, George M. Miller, 616 Smithfield Ave., Saylesville, R.I.

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## Designer Wants Position

Designer or Assistant Superintendent in woolen and worsted mill has worked on worsted piece dyes, naturals, dress goods and men's wear, cotton worsteds and all the different grades from fine domestic to ¼ blood. 26 years of age. Will not go to Canada. Address "Woolen Designer," care of Textile World Record, Boston, Mass.

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## MANAGER WANTED

for small Cotton, Lisle, Silk and Cashmere hosiery mill, to be started in small Ontario town. Salary $1800 per year. An allotment of stock and commission on net profits. Want man of good character and ability to make good. Apply to "Hosiery Manufacturer," Textile World Record, Boston, Mass.

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## LOOMS WANTED

About 25 CROMPTON & KNOWLES 72 inch looms, 4 x 4 box.

Schadewald Mills, Phila., Pa.

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## EXPERIENCED BUSINESSMAN

Will invest with services from $10,000 to $20,000 in an established business. Principals only. State full particulars. "Business," Room 26, 31 East 27th St., New York City.

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**FOR SALE**

2 Rashel double rib machines, 90 inches.
1 Rashel double rib machine, 118 inches.
The above are best foreign make and fully equipped, ready for work.

1 Warping mill, 11 feet long, with creel.
1 Payne winder (new) 24 spindles (12 on each side).

The above are in perfect condition and will be sold reasonably. Address, R.W.P. Textile World Record, Boston, Mass.

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## Dyer Wanted

Wanted experienced dyer on cotton and mercerized yarns for elastic webbing. State salary, age and experience. Address, "Webbing," Textile World Record, Boston, Mass.

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**FOR SALE** A Latest Improved Steel "Hurricane" Underwear Dryer. 6 Section. In good running condition. Good as new. For further particulars address, "Hurricane," care of Textile World Record, Boston, Mass.

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**WANTED** Position as foreman or as Knitter and Fixer in small ladies knit underwear mill. Can produce from one to two more shirts from each knitting machine every day than has ever been done before according to yarn used. Would like to get connected with a manufacturer who owns his mill himself with a view of becoming a partner later on. Good sewing machine fixer. 35 years old. Married. Good references. Address "Knitter and Fixer," care Textile World Record, Boston, Mass

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**Position Wanted as Superintendent of Knitted Underwear Plant** manufacturing men's, women's and children's cut goods. Twelve years experience knitting, bleaching and finishing. Age 32 years. Best of references furnished. Address "Full Fashioned," Textile World Record, Boston, Mass.

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## WANTED NEW CONNECTION

Young, married man, with thirteen years' experience in the jobbing of knit goods and the manufacturing of Ladies' light weight underwear, would like to associate himself with a knit underwear manufacturer. Competent to start and manage a new enterprise selling direct to the retailer. Address "R.W.T." Textile World Record, Boston, Mass.

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## For Sale

**The Mechanical equipment, brands and good will of the**

## Argonaut Cotton Mills

**Covington, Ky. Opposite Cincinnati**

**Now Operating 4864 Ring Spindles on**

**Cotton Twine, Carpet Warp, Wicking, etc.**

This mill EARNED 13% NET on its capital stock of $75,000 in the six months ending April 17, 1915, but owing to differences among the stockholders it has been decided to liquidate the business of the Company.

The location of the mill is such as to insure a plentiful supply of help, cheap coal and low freight rates (rail or river) on both raw material and manufactured products. For further information address

Liquidating Committee
ARGONAUT COTTON MILLS CO.
April 22, 1915 Covington, Kentucky

# Situations Wanted

**Manufacturers who are in need of Superintendents or overseers for any department of mill work may learn of suitable men upon application by mail or telephone to C. T. DONLEVY, care Textile World Record, 144 Congress Street, Boston, who will give prompt attention to their requirements without charge.**

**Designer** or assistant superintendent; has worked on fancy worsteds, woolens, piece dyes, overcoatings, men's wear and ladies' dress goods; 33 years of age, married; will not go West, South or to Canada; good reference.
6428, Textile World Record, Boston, Mass.

**Assistant Designer** in woolen mill; would consider position as second hand in weaving department; has worked on woolens, worsteds, cotton worsteds, men's wear and dress goods; familiar with Crompton and Knowles looms; 25 years of age; good reference.
6429, Textile World Record, Boston, Mass.

**Designer** or assistant designer; has worked on men's and ladies' suitings, woolen and worsted dress goods, unions, piece dyes, fancy blankets, etc.; familiar with Crompton & Knowles, Thayer and old style Crompton looms; 26 years of age; married; will not go West, South or to Canada; good reference.
6430, Textile World Record, Boston, Mass.

**Assistant Superintendent** in knitting mill; has worked on knit underwear; has had general mill training to become assistant superintendent; 29 years of age; will not go South or to Canada; good reference.
6431, Textile World Record, Boston, Mass.

**Overseer** or assistant in department for making up sheets, pillow cases, bed spreads, towels, etc.; stockkeeper in bleachery or shipping clerk; has worked on cotton goods, more particularly from the bleached state to the finished article and putting same on markets; 35 years of age; good reference.
6432, Textile World Record, Boston, Mass.

**Overseer of Knitting;** has worked on all kinds of fancy patterns made on flat bed machines; silk coats, worsted and woolen yarns; familiar with Grosser & Dubied double and single lock machines; Lamb and circular machines; 25 years of age; will not go South; good reference.
6433, Textile World Record, Boston, Mass.

**Second Hand of Dyeing** in cotton mill; would consider position as overseer in small mill; has worked on high grade mercerized sateens, silks, low grade and most any kind of goods; familiar with jigs, padders, black machines and dyeing machines; 25 years of age, married; will not go to Pa., West, South or Canada; good reference.
6434, Textile World Record, Boston, Mass.

**Overseer of Knitting** in hosiery mill; has worked on all kinds of cotton hosiery; familiar with Jenckes, George D. Mayo ribbers and loopers; 24 years of age, married; good reference.
6435, Textile World Record, Boston, Mass.

**Overseer of Weaving** in woolen mill; has worked on woolen and worsted goods; familiar with Crompton and Knowles looms and dobby heads; 40 years of age, married; will not go to N. H. or to Vt.; good reference.
6436, Textile World Record, Boston, Mass.

**Boss Bleacher** and dyer; has worked on knit goods, worsted and cotton mixtures, light and heavy, raw stock, wool and cotton yarns; familiar with the Rodney Hunt, Klauder-Weldon, Utica Novelty & Mill Supply Machines; Textile Machine Co. kiers and Jefferson kiers; 31 years of age, married; good reference.
6437, Textile World Record, Boston, Mass.

**Overseer of Mending;** has worked on woolens and worsteds; 46 years of age, married; good references.
6438, Textile World Record, Boston, Mass.

**Superintendent** of woolen mill; would consider position as assistant superintendent and designer; has worked on nearly all classes of goods; cotton worsted suitings, trouserings, union and cross dyes, fine and low grade woolens and worsteds, dress goods, cloakings and cotton mixes; 33 years of age, married; will not go South or to Canada; good reference.
6439, Textile World Record, Boston, Mass.

**Superintendent** of knitting mill; would consider position as overseer of knitting and finishing; has worked on high grade full fashioned men's and ladies' sweater coats and on cotton back and cotton plated cheap coats; familiar with Grosser power and hand machines, Seyfort, Donner, Claes & Flentje, Lamb, Scott & Williams and Brinton machines; 30 years of age; good reference.
6440, Textile World Record, Boston, Mass.

**Overseer of Ring** and mule spinning or both; would accept position as superintendent of cotton mill; has worked on sheetings, shirtings, sateens, lawns, from 8s to 120s on ring and mules; familiar with Dobson, Mason, Rope, Saco and Hetherington mules; Saco, Whitin, Fales and Jenks frames; 46 years of age, married; will not go to Vt., Pa., West, South or to Canada; good reference.
6441, Textile World Record, Boston, Mass.

**Designer** or assistant in cotton mill; has worked on cotton dress goods, cotton shirtings and light worsteds; familiar with Box Crompton looms also Single Box Fancy looms; 25 years of age; will not go to Pa., West, South or to Canada; good reference.
6442, Textile World Record, Boston, Mass.

**Overseer of Finishing** in woolen mill; has worked on worsteds, cassimeres, uniform cloth, kerseys, cheap cotton warp woolens, blankets, robes, flannels, etc.; familiar with all makes of American machines, some English and French also; 36 years of age, married; good reference.
6443, Textile World Record, Boston, Mass.

**Overseer of Mending** in woolen mill; would take a position as overseer of wet and dry finishing, or charge of shears; has worked on worsteds, woolens, men's wear and dress goods; familiar with shears, presses and decating machines; 31 years of age; will not go South or to Canada; good reference.
6444, Textile World Record, Boston, Mass.

**Overseer of Dyeing** in woolen mill; has worked on all classes of woolen goods; 35 years of age, married; will not go to Pa., N. Y., N. J., West, South or to Canada; good reference.
6445, Textile World Record, Boston, Mass.

**Engineer in Textile Mill;** is experienced on dynamos and all makes of engines; 50 years of age, married; will go anywhere for a good position; good reference.
6446, Textile World Record, Boston, Mass.

**Overseer of Weaving** in worsted mill; has worked on worsted dress goods, mohair and alpaca linings, worsted men's wear, etc.; familiar with Crompton & Knowles and George Hodgson looms; 43 years of age; married; good reference.
6447, Textile World Record, Boston, Mass.

**Manager,** superintendent and designer in woolen or worsted mill; has worked on fancy worsted piece dyes, resists, silk mixes, men's wear, dress goods, blankets, flannels, kerseys, mackinaws, etc.; familiar with all American makes of machinery; 43 years of age; married; good reference.
6448, Textile World Record, Boston, Mass.

**Overseer of Ring Spinning,** spooling and warping in cotton mill; would consider position of superintendent of a small mill; has worked on sheetings, prints, ginghams, from 10s to 120s yarns; familiar with all makes of American machinery; 50 years of age, married; will not go South; good reference.
6230, Textile World Record, Boston, Mass.

**Overseer of Spinning** in woolen mill; has worked on wool, shoddy and satinet goods; familiar with D. & F., and has had some experience on J. & B. mules; 43 years of age, married; good reference.
6231, Textile World Record, Boston, Mass.

**Superintendent or Overseer** in an underwear mill; has worked on ladies' fleeced lined underwear, and men's, ladies' and children's stockings; familiar with the Scott & Williams, Wildman and Brinton knitting machines; Singer, Metropolitan Merrow and Union Special sewing machines; 24 years of age; will not go South; good reference.
6213, Textile World Record, Boston, Mass.

**Overseer of Ring Spinning,** warping and spooling in cotton mill; has worked on shirtings, sheetings, print cloths, grain bags, etc.; familiar with Platt Bros., Whitin, Brooks, Saco & Pettee machines; 47 years of age, married; good reference.
6214, Textile World Record, Boston, Mass.

**Designer,** assistant superintendent, superintendent or manager in woolen mill; has worked on cotton warp serges, cotton and worsted men's wear, both medium and high grade, including fine serges; familiar with clipper looms and Knowles; 37 years of age, married; will not go West, South or to Canada; good reference.
6223, Textile World Record, Boston, Mass.

**Overseer of Finishing** or sewing machine fixer in knitting mill; has worked on all classes of knit goods; familiar with all sewing machines in the knit goods line; 48 years of age, married; will not go South or to Canada; good reference.
6224, Textile World Record, Boston, Mass.

**Superintendent** of a knitting mill, or would consider position as overseer of carding; has worked on all kinds of goods; familiar with Davis & Furber, also Smith machines; 42 years of age, married; will not go West, South or to Canada; good reference.
6225, Textile World Record, Boston, Mass.

**Overseer of Carding** in woolen mill; has worked on shoddy mixes and all kinds of cotton mixes and all wool; will not go to Pa., N. Y., N. J., West, South or to Canada; 50 years of age, married; good reference.
6226, Textile World Record, Boston, Mass.

**Superintendent** of yarn mill; has worked on hosiery yarns; familiar with Mason, Whitin, Saco & Pettee, Woonsocket and Kitson machines; 34 years of age; good reference.
6391, Textile World Record, Boston, Mass.

**Cloth Examiner** on finished goods; has worked on high and low grade woolens, worsteds, satinets, etc.; familiar with finishing room machinery; 25 years of age; will not go to Conn., Me., N. H., Vt., N. J., West, South or to Canada; good reference.
6392, Textile World Record, Boston, Mass.

**Master Mechanic;** has worked on all kinds of worsted and woolen machinery; both vertical and horizontal tubular boilers; engines both Corliss and slide valve; pumps; both A. C. and D. C. motors and generators; 33 years of age, married; will not go West or to Canada; good reference.
6348, Textile World Record, Boston, Mass.

**Master Mechanic;** has worked on all makes of cotton and worsted machinery; 44 years of age; married; will not go to Pa., N. J., West or South; good reference.
6349, Textile World Record, Boston, Mass.

**Overseer of Dyeing** or bleaching in cotton mill; has worked on cotton piece goods, dress goods, lawns and bunting; familiar with jigs, padders, reds, clarets and indigo dyeing; 26 years of age; will not go West, South or to Canada; good reference.
6350, Textile World Record, Boston, Mass.

**Superintendent** of small woolen mill; would consider position as assistant superintendent of large mill; has worked on all classes of Scotch tweeds, fancy vestings, jacquard work, all wool white blankets, also shoddy grey blankets, steamer rugs, large variety of double cloth cloakings, basket cloth, worsted trouserings and suitings, mackinaws, blanket cloths, fancy homespuns, etc.; familiar with all the leading English makes of machinery; 32 years of age; good reference.
6351, Textile World Record, Boston, Mass.

**Designer,** superintendent and designer of worsted mill; would consider position of salesman of mill supplies or worsted yarn; has worked on fine and medium fancy worsteds, men's wear also resist and cross dye worsteds; familiar with all worsted and woolen weaving and finishing machinery; 31 years of age, married; will not go South; good reference.
6352, Textile World Record, Boston, Mass.

**Loom Fixer** or boss weaver in woolen mill; has worked on all classes of goods; familiar with Crompton & Knowles looms; 49 years of age; married; will not go to N. J., West, South or to Canada; good reference.
6353, Textile World Record, Boston, Mass.

**Designer in Woolen Mill;** has worked on men's wear, woolen, shoddy and worsted; natural and piece dyes; is familiar with goods, bookkeeping and organization; familiar with different makes of machinery; 26 years of age; good reference.
6354, Textile World Record, Boston, Mass

**Moquette** or axminster manager or boss weaver; has worked on axminster, chenille, jacquard and tapestry carpets; familiar with English and American machinery; 41 years of age, married; good reference.
6355, Textile World Record, Boston, Mass.

**Overseer of Carding** in woolen mill; has worked on all grades of yarns and harding felts; familiar with Davis & Furber and Lombard machines; 37 years of age, married; good reference.
6356, Textile World Record, Boston, Mass.

**Agent of Cotton Mill or superintendent; has worked on** plain sateens, twills, pillow tubings, Lenos, Bedford cords, etc.; familiar with English and American makes of machinery; 49 years of age, married; good reference.
5984, Textile World Record, Boston, Mass.

**Boss Weaver** in woolen mill; has worked on all kinds of mohairs, dress goods, linings and cloths to be rubbered; plain and fancy worsted piece dyes, light men's wear and cotton worsteds; familiar with English, Crompton and Knowles looms; 23 years of age, married; will not go West or South; good reference.
6376, Textile World Record, Boston, Mass.

**Mule Fixer** in woolen mill; has worked on shoddy and cotton mixes; all wool and cotton waste from 1/2 to 7 run; familiar with Davis & Furber, Johnson & Bassett jacks and mules; 37 years of age, married; will not go to Pa., N. Y., N. J., West, South or to Canada; good reference.
6369, Textile World Record, Boston, Mass.

**Superintendent** in cotton mill; has worked in both cloth and yarn mills on all kinds of cotton, all lengths of staple and all numbers both carded and combed; familiar with both American and English makes of machinery; 41 years of age, married; will not go South; good reference.
6370, Textile World Record, Boston, Mass.

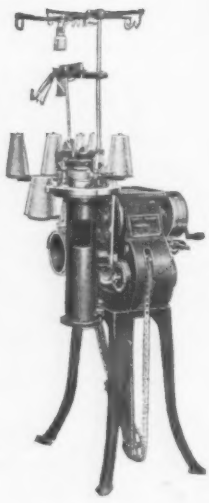
**Overseer of Dyeing;** has worked on cottons and worsteds, all worsteds, unions, cross dyes, worsted yarns, long and short skein cotton, raw stock, cotton yarns, piece dyes and resist yarns; familiar with all kinds of warp and worsted dyeing machinery; 45 years of age, married; will not go West or South; good reference.
6371, Textile World Record, Boston, Mass.

**Overseer of Weaving** in woolen mill; has worked on woolens and worsteds, fancy and plain, worsted piece dyes, cotton worsteds and mercerized piece dyes, piano felts, printers' bagging, roller and clearer cloth, coverts, venetians, etc.; familiar with both Knowles and Crompton looms, also Knowles cam looms; 37 years of age; will not go to Canada; good reference.
6215, Textile World Record, Boston, Mass.

**Overseer** or second hand of cloth room in cotton mill; has worked on collar goods, shirtings, sheetings, sateens, cambrics, lawns, nainsook and fine dress goods; familiar with Woonsocket trimmers, Elliott folders, Curtiss & Marble shears and Singer sewing machines; 25 years of age, married; will not go to Pa., N. J., West, South or Canada; good reference.
6238, Textile World Record, Boston, Mass.

**Designer** or superintendent in woolen mill; would consider any position of trust in a mill; has worked on woolen and worsted suitings, serges, gabardines, cross dye fancies, overcoatings and dress goods; 50 years of age, married; will not go West or South; good reference.
6239, Textile World Record, Boston, Mass.

# Why Not Have Your Plant Flexible?



It is no longer necessary to buy hosiery machines of special diameter that can be used for only one class of goods.

By installing our Model G machines you can make all sizes of men's, women's, children's and infants' stockings upon the same machine and without the use of ribbers.

ESTABLISHED 1865

**SCOTT & WILLIAMS, INC.**

NEW YORK **88 Pearl Street, Boston** UTICA

## KNIT.

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**New Mills.**

*California, Los Angeles A knitting plant has been established by the Myers Mfg. Company, manufacturers of bathing suits, with plants at Poughkeepsie, N. Y., and Los Angeles, Cal. The new department has 3 knitting machines and 3 sewing machines and is making men's, women's and children's knit bathing suits and men's and boys' jerseys. E. B. Myers is president, and Benjamin D. Potter is superintendent. Messrs. Myers and Potter attend to the buying.

Canada, British Columbia, Vancouver. A. C. Cohen, formerly manager and buyer of the Pride of the West Knitting Company, Ltd., is to establish a new knitting plant in Vancouver and has arranged for part of the equipment. Sweaters, sweater coats, and fancy knit goods will be manufactured.

Illinois, Chicago. Charles L. Felton, 711 Vedder St., is starting a small sweater coat business. He will specialize on silk fiber coats.

New Jersey, Camden. Operating under the name of the Camden Knitting Mills, with James Firth as proprietor and Jos. Firth, superintendent, a plant has been started up at 2101 Broadway, with 6 knitting machines, both flat and round frames, and 3 sewing machines, on which they will manufacture a line of sweater coats, bathing suits and knitted novelties, using electricity as the motive power. The production will be sold direct.

New York, Utica. A plant for manufacturing children's knitted waists and union suits has been equipped at 616 Broad St., under the name of the K-F Knitted Waist Company. Barnes, McGoey & Ely, N. Y., are the selling agents. Electric power is used. The equipment consists of 6 knitting machines and 16 sewing machines, formerly operated by the Cambridge Springs (Pa.) Knitting Company.

*North Carolina, Coats. The building to be erected by the new Coats Hosiery Mill, recently incorporated with capital stock of $10,000, will be 70 by 24 feet, of frame construction. 41 knitting machines, a hand press and a boiler will be installed.

*Pennsylvania, Bally. Thirty knitting machines, 8 ribbers and 6 loopers are being operated by the new Paragon Knitting Mills on men's and women's silk hosiery. Leo J. Eck is head of the new concern and attends to the buying.

*Pennsylvania, Boyertown. The large new hosiery mill being erected on Second St., between Washington and Franklin Sts., for John Blood & Company, will be ready for occupancy by June 15. The building will be 3 stories high, 150 by 45 feet, of brick, steel and concrete construction, and is to be leased and occupied as a branch by John Blood & Company. Two hundred hands will be employed here manufacturing hosiery if this number of operatives can be secured.

Pennsylvania, Philadelphia. The Lincoln Silk Knitting Mills have been started up at 44 North 4th St. by N. E. Kahn and J. Kenner, with 8 latch needle knitting machines and 5 sewing machines, which they are operating by electric power on silk sweater coats, sashes, caps and reefers, using silk, artificial silk and mercerized yarns, selling the production direct.

Pennsylvania, Reading. William F. Taubel, Inc., of Riverside, N. J., manufacturers of all kinds of seamless hosiery, are reported to have leased two floors at 6th and Chestnut Sts. for a branch hosiery knitting plant. It is said that 150 hands will be employed and that the product will be shipped to the concern's Philadelphia mill to be finished. Reports have been given recently of plans of the Taubel concern to establish branches at Lebanon, Pa., and Trenton, N. J. Mr. Taubel, head of the concern, was in Reading a short time ago and concluded arrangements for the local branch, taking a five-year lease of the space at 6th and Chestnut Sts.

*Pennsylvania, Reading. The new underwear plant which it was noted earlier in the month was being established at 810 Windsor St., is headed by Charles H. Cox, who will manufacture under the name of the Chasox Underwear Mills, specializing on men's and boy's ribbed athletic shirts. The initial equipment will consist of 6 knitting machines and 5 sewing machines. Mr. Cox has just started to make samples.

*Pennsylvania, Spring City. Work is progressing on the installation of equipment for the new Keystone Stocking Mills. E. C. Matlack is president; John Lindauer, secretary, and John Scott, Jr., treasurer. The company has leased the old Urner Mills, in which they will install as initial equipment 100 knitting machines of a new pattern and 25 loopers, on which they propose to make lines of staples and novelties in hosiery which they will sell through their New York office at 74 Leonard St. Electric power will be used. Operation will be started about May 1. Messrs. Matlack and Lindauer are president and treasurer respectively, of the Progressive Knitting Mills, manufacturers of ladies', misses' and children's ribbed vests and union suits at Royersford.

*Pennsylvania, Sunbury. I. Clyde Gass, who was previously reported interested in starting a hosiery manufacturing plant, has installed 4 new knitting machines and electric power equipment at 521 Packer St. Production has not been started as yet. The present location is considered temporary by Mr. Gass and larger quarters will be secured when the business warrants.

*Tennessee, Newport. A building, 40 by 20 feet, has been built by J. W. Kyker for his hosiery mill and 15 knitting machines with auxiliary machinery are being installed. A gasoline engine will be used for power at first and later a change will be made to electric power. Coarse yarns in black and white, blue and white, and plain white will be bought.

TRADE MARK

TRADE MARK

F. B. WILDMAN

# WILDMAN MFG. CO.

MANUFACTURERS OF

## Circular Rib Knitting Machinery

**Electric Cloth Cutters**

**AUTOMATIC STOP MOTIONS**

**Norristown, Penn. - U. S. A.**

## *Meeting of the National Association of Cotton Manufacturers*

(Continued from page 213)

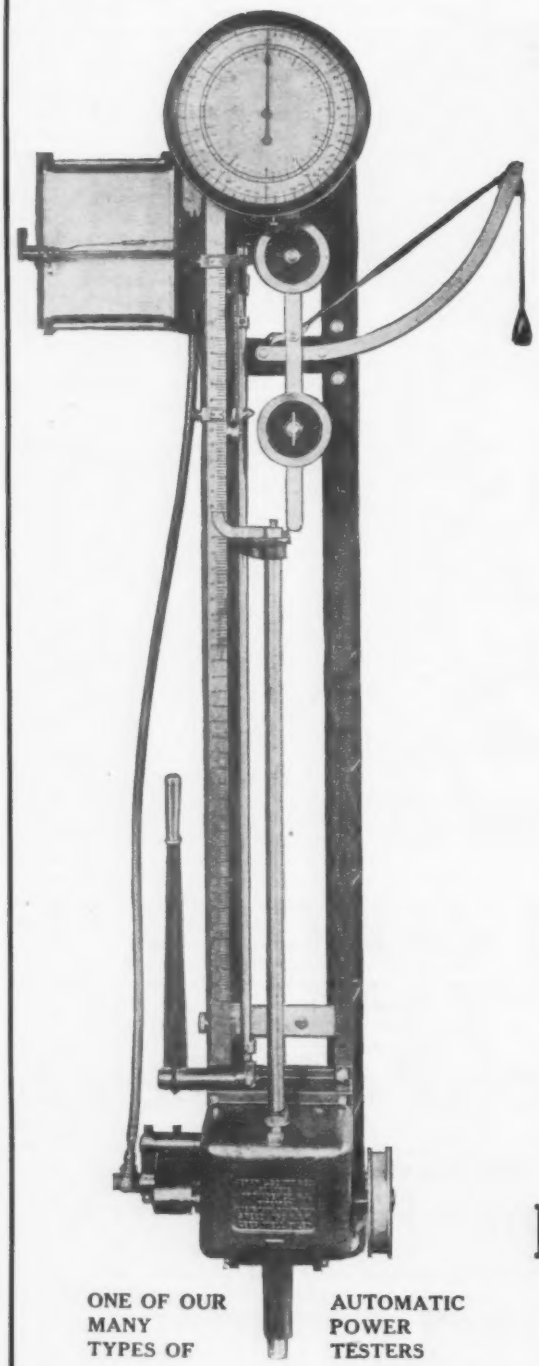
### UTILIZATION OF COTTON WASTE BY GERMAN AND AUSTRIAN METHODS

By FRANK NASMITH, Consulting Engineer, 33 Barton Arcade, Manchester, England

In practically every manufacturing process waste is produced, which in a great many cases is put to some definite profitable use. In the cotton spinning industry, although a certain amount of the waste produced is mixed with the fresh cotton and combined in the yarns forming the staple product of the mill, there is always a comparatively large amount which the spinner cannot use in this way and which he sells to the waste merchant or waste spinner. Recently a very varied, and in many ways remarkable collection of fabric samples, made in Germany and Austria, was displayed in London and Manchester, England, a great number of which were woven from yarn spun from cotton waste. Fabrics composed of cotton and wool waste, cotton waste and fresh raw cotton of short staples and other mixtures were also shown, but the point to be emphasized is that out of waste material excellent, tasteful and marketable fabrics were produced. The range of fabrics shown comprised cotton blankets, printed flannelettes, sponge cloths, molletons, printed cretonnes, voiles, suitings, etc., many of them being most delicately printed and finished. To those accustomed to the lower class waste trade these fabrics were a revelation and they demonstrated very clearly the high position the German and Austrian manufacturers have attained. Although these fabrics are in many cases manufactured to act as substitutes for all cotton or all wool material, there is a large market for them which at the moment cannot be completely supplied owing to the stoppage of exportations from Germany and Austria.

Before going further it will be necessary to draw a distinct line between hard and soft waste. In Lancashire the former class of waste is thoroughly understood and its treatment has been developed to produce such good results that foreign competition is not felt. As a matter of fact, Germany exports hard waste to be treated in Lancashire just as Lancashire exports soft waste to Germany. Hard waste comprising chiefly cop bottoms is dealt with by a range of machines comprising hard waste breaking machine, scutcher, breaker carding engine, derby doubler, finisher card with condenser, and mule or ring frame. It is not intended to say anything further about hard waste in the present paper, but to direct your attention firstly to the treatmen of low quality soft waste—sweepings, droppings, cardfly, card strips, comber waste, etc., as employed in the German and Austrian mills. Whatever reason may be forthcoming in regard to the treatment or non-treatment of soft waste in England and the United States, the fact remains that in the past the Germans and Austrians have carried out experimental and research work until they have developed a very considerable and profitable industry. Their waste utilization industry has been brought to a high state of economical and productive effectiveness, and it is absolutely impossble for us to immediately compete with them in the production of the wide range of yarns and fabrics they turn out. Only after years of endeavor will it be possible to compete on equal terms, for one must recognize the value of specialized effort, and the knowledge that is the outcome of practical development. At the same time it is possible to immediately produce with machinery at our disposal certain ranges of yarn and fabrics hitherto produced in Germany and Austria and shipped to England and the United States. Many spinners in the United States must have been faced recently with the problem of the disposal of their waste and no doubt stocks have accumulated, while on the other hand there has probably been an outcry for yarns suitable for manufacturing into knit goods. Well, here is the raw material on the one hand and the market for the finished product on the other. The gap between is not a difficult one to bridge and should the opportunity of bridging it be now seized there is every reason to believe that the reliance hitherto placed on exportation of cotton waste and importation of hosiery yarns will not again be necessary, besides which a new industry will be created. It must be recognized that the extreme cheapness of the material dealt with and the low priced goods into which it is eventually manufactured make it imperative that the cost of the treatment should be small. In dealing with low soft waste made up into yarns for carpet backings, sponge cloths, cheap hosiery, candlewicks, and the like, if these are to be produced cheaply, then the output must be considerable, and bulk lots will have to be handled. Particularly is this the case in regard to black hosiery yarns, and in place of the comparatively small parcels usually dyed at one time, lots of 2,200 pounds are commonly dealt with in Continental mills. Before briefly describing a type of apparatus suitable for dyeing bulk lots, it can be said that the old objection to the trade as being an extremely dirty and dusty one has been largely removed by the introduction and employment of dust extraction devices which not only clear the atmosphere of the room, but also remove the dust from the various machines immediately after it is created.

One form of Continental dyeing apparatus comprises a central perforated column or shaft and outer segmental plates. An inner and outer ring of plates are employed, these being built up round the central column. Between the inner plates and the column, the material—to the amount of 2,200 pounds—is packed, after which the outer plates are secured in position, a cover fastened on and the material washed, then dyed, and finally washed by circulating the liquors through the central column, through the material, through the inner set of plates and back to the pump. A batch of 2,200 pounds can be dyed and washed in a maximum time of ninety-six minutes. When completely treated the plates are removed, the stack of material broken down and delivered to a hydro-extractor, after which it is passed through an opening and loosening machine which will treat the wet material. Hitherto the material used to pass direct to the drying machine from the hydro-extractor, but a great deal more steam is required



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for drying purposes when this is the case. After drying, the material passes forward to the first machine of the series it has been decided to use. Apparatus of this character has decided advantages over that dealing with comparatively small quantities. In the first place a saving of from 60 to 70 per cent. in the steam used may be effected, and a saving of 70 per cent. in the labor involved. The dye bath need only be one-half gallon for one pound of material, against two to three more gallons to the pound where small lots are dealt with. It is claimed that the cost when large capacity plants of this character are used comes out at 1/2d. per pound for dyestuff, labor, steam and power. A further advantage lies in the fact that half oily waste may be scoured and cleaned by boiling and steaming prior to dyeing and without unpacking.

Dyeing by sulphur colors affords the simplest, cheapest, and most rational dyeing process, as the first original bath may be used for months, and no skilled labor is required. Comparative tests made between open tank dyeing and the system just described showed a total saving of 22 per cent. in favor of the bulk closed circulation system.

Two broad methods of bleaching are employed, either (a) warm bleaching for any low cotton and waste by high pressure boiling, or (b) cold bleaching of good clean cotton without boiling or steaming. These two main systems are subdivided into a number of minor systems chiefly applicable to the bleaching of loose material, the intermediate products, and of yarn. They apply also to loose waste of every kind, including "linters" and the short fiber freed from the cotton seeds for conversion, into chemically pure cellulose, absolutely free from oxycellulose, for the manufacture of gun cotton, explosives, smokeless powder, artificial silk, celluloid, etc., and finally to the manufacture of surgical absorbent cotton wadding.

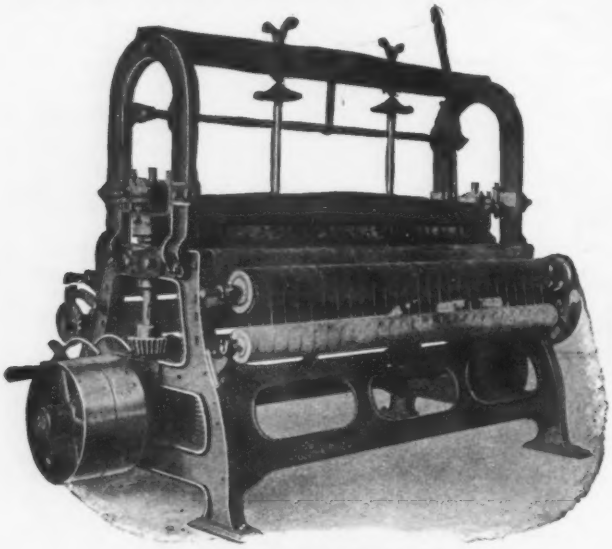
In one system of bleaching adopted on the Continent, the raw material is first opened and cleaned in a willow and then blown through a trunk into a specially constructed boiling kier with a hermetically closing cover. The kier is fitted with a filling apparatus and a sprinkler arrangement, the latter producing a spray which meets the loose cotton as it enters, rapidly penetrates and moistens it, and causes it to deposit itself—tightly packed—upon the perforated false-bottom of the kier. By this method about 1,700 pounds to 2,000 pounds of raw cotton may be fed into the kier in the short space of half an hour, damped down and reduced in volume to such an extent that it only fills a kier about 6 feet 7 inches in diameter and height. The filling apparatus is then removed and replaced by a perforated lid and an internally fitted cover, so that the wet cotton is enclosed between two perforated discs, with the result that no flocks of fiber can be carried away by the circulation of the boiling liquors; thus avoiding loss of material and dangers of stoppage in pipes and valves, or clogging of the circulation apparatus. Preparing liquor is first circulated through the material and then the vat is hermetically sealed, and boiling is accomplished under high pressure up to 57 pounds, with fresh alkaline lye in conjunction with a special oil preparation. The air contained in the cotton has first been exhausted by an automatic device, leaving a vacuum. Owing to the preliminary preparatory process and to the special construction of kier, a four to six hours' boil is sufficient. An electrically driven transport device then carries the boiled cotton into a second wooden kier—a bleaching and neutralizing apparatus of simple construction provided with a suitable circulating arrangement. The bleaching bath acts on the material without pressure for two hours only. The bleaching bath is followed by a thorough rinsing, half an hour sour, and then a final thorough washing out in the same apparatus, after which the material is automatically discharged to the hydro-extractor, thence to the wet cotton opener.

A cold bleaching process sometimes employed is based on the use of hypochlorites of alkalies and oil preparations. These oil preparations are intended on the one hand as aids to rapid moistening and capillarization, so that the bleaching liquor not only touches the surface of the fiber, but penetrates in a very short time into the finest pores and crevices of the fiber in which the colored impurities are chiefly located. On the other hand, they serve as conductors of oxygen, and effect therewith an energetic oxidation of the impurities while preserving the natural character of the fiber.

Coming to the machinery necessary for the production of yarns, it is proposed merely to give the names of these with a few details of special machines. The first is the opening machine, known as the willow, which in the ordinary way has to deal with matted material in an extremely dirty state. Dust exhaust devices have now been applied to willows which have very materially improved conditions in opening rooms. On the Continent, fresh raw cotton of short staple—chiefly Asiatic cotton—is mixed with the waste and a Crighton opener becomes a necessary unit of the plant. A great deal of the soft waste made in both mule and ring mills is found to contain hard threads which may form a comparatively small percentage of the total weight, but nevertheless have to be separated out before the waste can be returned to the mixing. Machines termed thread extractors are employed to remove these hard threads and they comprise a feeding funnel, three spiked rollers which are made to revolve at a high speed to thoroughly loosen the material so that the "soft" waste is separated from the "thread" waste; a fan to draw away the soft material the threads wrapping round and being retained by the spiked rollers. A machine that has given excellent results in the direction of improving the mixing is termed the Pickering machine, made with either one or two cylinders. The scutcher and lap machine employed does not differ very materially from the type used in the ordinary mill. The foregoing machines are well known and are common to the trade.

It is when we come to carding that a difference in methods and machines between Continental and English spinners is to be noted. For yarns from 1s to 6s a comparatively simple plant is advocated in England with a set of machines comprising a single breaking carding engine fed by scutcher laps, and connected by a Scotch feeder to a single finisher carding engine with ring doffer. It is

# CHINCHILLA MACHINE



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**A WATERPROOFER FOR CEMENT-CONCRETE**
F. WILLIAM STOCKER, INC. HOBOKEN, N. J.

## ANNOUNCEMENT—TO DROP WIRE USERS

In our new location at Woodbury we have a modern factory with up-to-date machinery for making drop wires and can give your requirements prompt and careful attention.

Our drop wires are free from burr and have unequalled finish.

When desired we can keep your wires in stock ready to ship on receipt of order.

The wires will not rust in stock as we keep them in a special preparation.

Just let us know your needs and we will submit prices which we know will prove attractive.

**CONNECTICUT MILL SUPPLY CO., WOODBURY, CONN.**

FACTORY PROTECTION FENCES
SEND FOR CATALOGUE "K"
OLD COLONY CHAIN LINK FENCE
OLD COLONY ANGLE IRON FENCE
OLD COLONY FOUNDRY & FENCE CO.
43 WEST STREET
BOSTON, MASS
WE BUILD OLD COLONY FENCE ANYWHERE

claimed that a ring doffer condenser makes the best quality of yarn, besides which it is simple in construction and easy to work. Leather tape condensers are also employed and several improvements have recently been made in this class of apparatus. The advent of condensers with four and six tiers of rubbing leathers has rendered it possible to produce the maximum number of threads (up to 240 in the case of machines 72 inches wide) without risk of their coming in contact whilst being rubbed, and the output of a set of carding engines is thereby materially increased.

As has been previously pointed out, one of the chief objects of the Continental waste spinner has been to secure large production in short periods of time and to this end the machinists have developed a form of card—on the woolen principle—which certainly achieves the desired result. Compared with the machines advocated by English makers, the Continental cards are complicated and demand a higher class operative to tend them.

From the card the condenser bobbins can either be put up at the mule or ring frame. The former has been developed particularly for waste spinning and three speed mules are now common.

The Chapon frame is largely adopted on the Continent. It has been introduced for the production of low counts of yarn from 1/2s up to 4s, and it is claimed to be specially suitable for spinning a full, soft thread, with the least possible amount of twist for weft or filling purposes. One particular use of yarn made on this frame is as weft for cotton blankets, the fabric produced being fuller and more regular than fabrics woven from mule weft. The essential mechanism of the frame comprises a metal cup, spindle and flyer. The cop is built on the spindle within the cup and as the thread is wound on the spindle the latter with the cop are gradually forced upwards until the full length of cop is attained. The flyer is employed to impart the necessary twist and the crossing of the thread on the cop is obtained by a vertical movement to the flyer by a lifting rail. The flyer has consequently a vertical motion in addition to the rotary, while the cup has a rotary motion only. The cup and flyer revolve at the same speed, and slightly quicker than the steel inner spindle, therefore the distance between the two speeds causes the winding-on to take place, but the tension of the sliver is so very slight that the most delicate and slightly twisted threads may be wound without difficulty. The ring spinning frame has recently been improved in a somewhat simple but effective manner. In place of one front top roller, two such rollers are employed in combination with one front bottom roller. The middle top roller is lightly weighted but set close to the back roller of the pair of front top rollers. Short fiber is easily drafted and when long fiber is passing through, the middle top roller becomes practically inoperative as the front rollers can easily draw the long fibers under the middle top roller without damage. In combination with the improved condenser card previously described excellent results have been secured.

## *Convention of Hosiery and Underwear Manufacturers*

(Continued from page 165)

Now, if it were possible to let the bath settle for a number of hours, the ill effects would be reduced. The instructions for this process call for the addition of the peroxide immediately after the bath is acidulated, and in the subsequent agitation the precipitated particles of sulphates are caught on the fibers by filtration, causing a disagreeable harshness of the bleached goods.

It is a fact that the manufacturers of the peroxide bleach do not recommend its use with a hard water. Results obtained with Permutized water are always very satisfactory. Only recently a consulting chemist in Philadelphia made experiments with peroxide bleaching on silk with a natural color, a lime-soda treated water and Permutized water, and reported to his client, a well known hosiery manufacturer, that the best results were obtained with Permutized water.

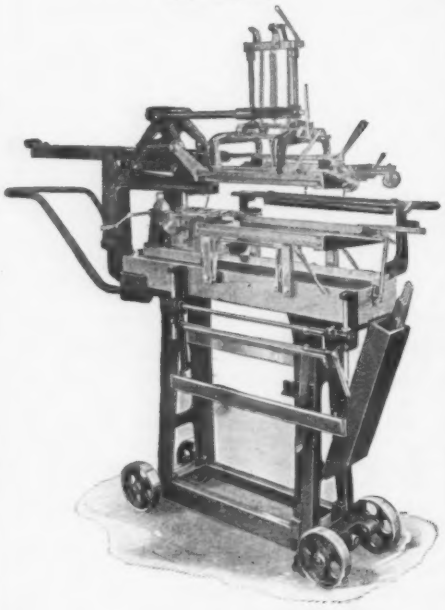
It is only necessary to say here that as between lime-soda treated water and Permutized water for textile purposes the advantage is all with the latter. Lime-soda treated water is rarely softer than four degrees—the same as Delaware River water—while Permutized water is zero degrees. Lime-soda treated water is caustic, and must be carefully neutralized for wool and silk with some acid, while Permutized water is absolutely non-caustic. Then again—a great advantage—Permutized water is always of uniform composition, while the chemical and mechanical limitations of the older lime soda process almost invariably cause the treated water to vary noticeably in hardness and causticity from day to day and almost from hour to hour. Some dyers have said that they would rather work with a well water of uniform hardness than with a lime-soda treated water of baffling variation. The uniformity of Permutized water is perhaps the principal reason which is inducing manufacturers to throw out the older process and to install Permutit.

The best proof of the value of Permutit to the textile manufacturer is the rapidity with which it has been adopted by them in this country and abroad. Of the Permutit plants in this country a goodly number are installed in knitting mills. Reading, Easton and Norristown are well represented and an installation is now under way for one of the leading wool and cotton yarn dyers in Philadelphia. The history of Permutit has been that wherever it is installed in a locality, in a little time other manufacturers in the same line also adopt it, so we confidently believe that by the time of the next Convention we shall report more users in Philadelphia itself, in addition to the inevitable number elsewhere throughout the country.

P. C. Withers, president and manager of the Illinois Knitting Company of Mt. Vernon, Ill., then took the floor to speak on the subject of "Federal Regulation for the Hours of Labor for Children and Women Workers." Mr. Withers stated that this is one of the

# Barber Warp Tying Machine

**Model K**



2,500 to 4,000 ends per hour on fancy Jacquards and Dobbies.

Why continue hand work when this machine is more economical and will increase loom production sufficiently to pay a handsome return on the investment

**Barber-Colman Company**

**Boston, Mass.** **Greenville, S. C.**

Main Office and Factory
ROCKFORD, ILL.

50,000 AMERICAN STEEL SPLIT PULLEYS *In Stock!*

PEOPLE have bought more than 2 1-4 million AMERICAN PULLEYS. 50,000 pulleys *always* in stock for prompt shipments. May we send catalog?

**The American Pulley Co.**
Phila. New York Boston Chicago

**DRONSFIELD CARD GRINDERS**

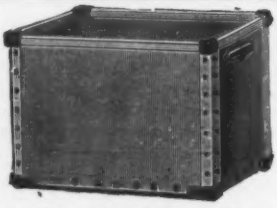
When Ordering New Cards
**Always Specify "DRONSFIELD" Grinders**
**The Grinders of World-Wide Fame**

Supplied by all the leading
**Textile Machinery Importers, Boston, Mass.**

EMPIRE MILL CRAYONS

"BEST BY TEST"

THE AMERICAN CRAYON CO.
Waltham, Mass. and Sandusky, Ohio



**Diamond FIBRE**
**Roving Cans**
**Mill Baskets**
**Barrels**
**Boxes**

Will neither dent nor break when subjected to hard usage. Stronger than wood, lighter than steel. *Write for folder.*

**DIAMOND STATE FIBRE CO.**
**Bridgeport, Montgomery Co., Pennsylvania**
Branches in Principal Cities

two big questions which are being discussed all over the country—National Prohibition is the other. Every manufacturing state either had been or was now agitating this question of regulating of working hours for women and children. The daily press held the manufacturer up to contempt and scorn as a cruel tyrant amassing a fortune through the destruction of the lives of women and children who are worked to death. He said it was the duty of manufacturers to present the true facts in opposition to the untrue pictures painted by the theorists, who were, in most instances, without practical experience. It is a great mistake, in Mr. Withers' opinion, to pass laws regulating hours without any relation to individual cases, and it worked a great hardship in innumerable cases where children fourteen and fifteen years of age were perfectly able and anxious to assist in the support of their families or to get money for their own education and were deprived of doing so. The denial of their right to work in vacation time was particularly unfair. Mr. Withers believed that there should be a commission or some body whose duty it should be to pass on the individual fitness of each child who might desire to work under the age of sixteen, rather than to have an ironclad law covering all cases. He believed that it is a matter that should have federal control with a view to providing uniform conditions in all States so that manuafcturers should be on the same basis on these important questions. He introduced resolutions to this effect, which were unanimously carried.

The Nominating Committee then made its report and the following list of officers were unanimously elected:

For President—P. C. Withers, president and general manager of the Illinois Knitting Co., Mt. Vernon, Ill.

For First Vice President—Edward Blood, Sr., of John Blood & Bro., Philadelphia, Pa.

For Second Vice President—T. H. Johnston, of Knoxville Knitting Mills Co., Knoxville, Tenn.

For Treasurer—Robert C. Blood, of John Blood & Co., Philadelphia, Pa.

For Secretary—C. B. Carter.

For Members of Board of Directors—William E. Hall, treasurer of Shaw Stocking Co., Lowell, Mass.; Joseph Feldenheimer, Roxford Knitting Co., Philadelphia, Pa.; Eugene West, of West Brothers, Syracuse, N. Y.

Mr. Leippe called the newly elected president to the platform and congratulated him upon his election and took occasion to extend his thanks for the support which the Association had given to him in his three years in office and predicted the same backing for his successor. Mr. Withers thanked the Association for the honor done him and promised his best efforts for a successful administration.

President Withers called the Thursday morning session to order and after a few preliminary remarks introduced C. C. Parlin of the Curtis Publishing Co., who spoke on

## MERCHANDISING OF HOSIERY AND UNDERWEAR

By C. C. PARLIN of the Curtis Publishing Company

Men and women differ in their buying. A man in his buying is usually impelled by one of four influences:

1. Convenience.—"Where is the nearest place a collar may be found?" he inquires.

2. Impulse.—Walking down the street he is attracted by a window display and unexpectedly purchases a necktie, the pattern of which pleases him.

3. Custom.—He goes in a routine way to an accustomed place where he will be greeted with, "Good morning, John," and where he can say, "Charge it, Bill," and get out without encountering any red tape.

4. Brand.—He may go some distance out of his way to find a desired brand of overcoat or hat or collar, for in his buying he depends much on brand.

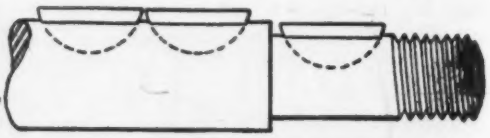
Price is not listed as a special influence, but it operates to modify the buying done under any of the given influences, for man is not disregardful of price.

Woman's purchases are of two distinct classes, and from the standpoint of a manufacturer, it makes all the difference in the world in merchandising method as to which of these two classes he is trying to sell.

These two classes we call "convenience goods" and "shopping lines." Convenience goods comprise notions, cottons under 15c. a yard, stockings for the children, cheap underwear, and in general, the lower end of woman's purchases. An inventory of a suburban dry goods shop will furnish a complete list of convenience goods. These lines are bought under the same influences that affect men: (1) at a convenient store, or (2) by impulse, or (3) at an accustomed place, of (4) by brand. There is little or no comparison of values.

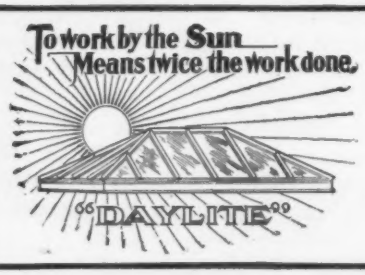
Shopping lines in general comprise the upper

## Key Seating Attachment
FOR
## Whiton Gear Cutter



We offer an attachment for use with our Gear Cutting Machine, to cut key seats for the Woodruff System of Keying. Write for description, circulars and price.

**THE D. E. WHITON MACHINE CO.,**
**19 Oak Street, New London, Conn.**




## Van Noorden Skylights
ADMIT DAYLIGHT NOTHING ELSE
Applicable wherever daylight is desired.
*Send for Catalogue*
## E. Van Noorden & Company
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# FOSTER SUPERHEATERS

***Installed in any type of boiler without change in setting. Uniform superheat guaranteed.***

## Power Specialty Company,

**BOSTON: 50 Congress Street** **NEW YORK: 111 Broadway.**

## Pulley and Gear Forcer.

We build a simple, powerful and very effective machine for removing gears and pulleys from shafting. Many mills use them. **Only costs $8.00.** Saves its cost in time and breakage.

BAMFORD & SMITH, Providence, R. I.

**100 MILLS CAN TESTIFY**
TO THE
## Efficiency, Capacity and Excellent Finish
PRODUCED ON OUR
## Finishing Machinery for Knitting Mills
***Free Demonstration on Request***
**THE CONSOLIDATED HOSPITAL SUPPLY AND LAUNDRY MACHINERY CO., Saugatuck, Conn.**

# Arlington Machine Works
**TEXTILE FINISHING MACHINERY**
ARTHUR BIRCH, Proprietor
**Arlington Heights (near Boston), Mass.**

end of woman's purchases—cloaks and suits, carpets, millinery, the better grades of hosiery and underwear, and all those articles which a woman records on her mental shopping tablet (which never forgets), and of which she defers the purchase until a trip to her shopping center. In these lines a woman does want to compare values. She wants to go to one store, then to a second, then to a third, and after having seen three stocks, to make her choice, by comparing quality, price and style.

If a merchant secures a monopoly of the dry goods business of any community, the women of the community will seek their shopping lines in neighboring cities or will purchase by the catalogue route. Hence, monopoly is impossible. As a matter of fact, a woman wants to compare values in three stores. Why three, I do not know;

C. C. PARLIN

perhaps it is the limit of her endurance. But whatever may be the philosophy, it is evident that three is the magic number in woman's shopping; for in almost every city where shopping lines are carried, you find just three important stores with these lines—seldom less and seldom more—until you reach cities of 25,000 population. Then the number increases very slowly.

The sale of shopping lines is also concentrated into a comparatively few cities. We divide cities into two classes—shopping centers, and suburban. A shopping center is a city that draws more trade from outside than it loses to other places. A suburban city is one that loses more trade than it draws in from the outside. The importance of the distinction lies in the fact that the city which draws in trade, draws it in shopping lines, and hence has a group of shopping stores; while the city that loses more trade than it draws in, loses it in shopping lines and its stores tend to become merely shops of convenience goods.

Thus we find that shopping lines are sharply concentrated into a relatively small number of cities and into a very small number of stores within each city which we are accustomed to call department stores.

Since men are not shoppers, the department store facilities for the comparison of values do not attract men's trade, and the stores can successfully sell men's lines only so far as women are an influence in their selection.

Hosiery and underwear partake of the characteristics of both convenience goods and shopping lines. The cheaper grades—that is, hosiery of 25 cents and under, and underwear of 50 cents per garment and lower—are convenience goods. They are scattered through a multitude of suburban shops and rural stores and the manufacturer who would secure his maximum market needs the assistance of the jobber.

The upper lines, that is, hosiery of 50 cents and up, underwear exceeding 50 cents per garment, partake of the nature of shopping lines and the trade in women's lines tends to concentrate into a comparatively small number of cities and into a comparatively small number of stores in those cities and the higher priced the line, the greater the degree of concentration. The manufacturer of higher priced hosiery and underwear, therefore, will be able with his own salesmen to cover enough stores to reach the great bulk of his market.

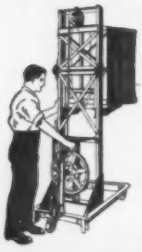
As to the advisability of giving an exclusive agency—various shopping lines differ. In cloaks and suits a manufacturer can advantageously confine his line to one of the three department stores in a shopping center; for since women will look at three stocks before making a purchase, they will see his line, and the active pushing of one store may be worth more than the passive handling of three. Besides, in such a line the woman is looking for something exclusive, and if this line is on display in every store, she is apt to think that it is too common.

If, on the other hand, the manufacturer has an advertised material such as lace or silks, he will obtain maximum sales by placing stocks in all the stores, for in such lines women shop on patterns and accept a recognized brand as a guarantee of quality.

Now, hosiery and underwear are not exactly analagous to either of these classes. There is no persistent hunt each season for something new in style or pattern. A woman is likely to shop for underwear until she finds a make which pleases her and she then tends to become a regular customer until some unsatisfactory experience with a garment shakes her faith or some advertisement or store display draws her attention.

Since a woman does not always make a circuit of the stores every season to compare qualities, styles and prices in underwear, probably sales would be increased by representation in all the stores, but as a practical proposition, in the higher grades of underwear, there are so many numbers

## Economy Steel Tiering Machines



enable one man to lift heavy boxes, bales, barrels and rolls, clear to ceiling's height. Built to operate by hand, electric or pneumatic power. Portable, safe and simple.

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**Special Machinery Built. General Machinery Repairs.**

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**Thread and Silk SPOOLS of any description**

**Made from one piece, up to 6″ long and 3″ dia.**

We are located in the best white birch region. Our work and prices seem to satisfy the most particular customers. We can give any finish desired. Estimates furnished on samples submitted

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**1,200,000 pairs now in use**

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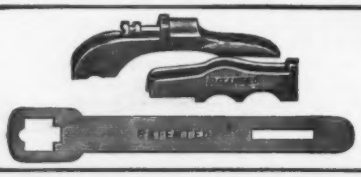
**Manufacturers of all kinds of Saddles, Stirrups and Levers**



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**SAVE**
**Their Cost**
**In Freight**

## THE CHAFFEE PATENT CLOTH BOARD,

**Made of paper and wood,**
**Needs no covers,**
**Will not split or warp;**
**Not liable to break.**

**MFG. BY CHAFFEE BROTHERS COMPANY, OXFORD, MASS.**

**BOX SHOOKS and CLOTH BOARDS.**

**Clean**
**LIGHT**
**Strong**

because of varieties in styles as well as in sizes that a merchant cannot carry adequate stocks of many different makes and hence for a manufacturer to secure adequate representation it may be necessary to give an exclusive agency, and the active pushing of one merchant with a representative stock may prove more effective than the passive handling on the part of several merchants, no one of whom adequately represents your line.

The manufacturer of hosiery encounters less difficulty in stock varieties and stock numbers and will usually get a larger market by representation in many stores than by an exclusive agency policy.

"But," says the manufacturer of the convenience line of hosiery or underwear, "my line is sold partly in department stores and partly in suburban shops and rural stores, which can be reached only through the jobber. What is the relative importance of the direct sales market and the jobber market?"

To answer this question, in making our department store investigation, we studied the jobbing and retailing conditions in every one of the hundred largest cities and in many of the minor cities. In these we estimated the volume of the individual department stores and on the basis of the cities we investigated we estimated the volume of department store business in the other cities and reached a total of $2,094,000,000 for the total of the United States in dry goods and ladies' ready-to-wear.

Now, the question is, what per cent. of the $2,094,000,000 is bought direct and what per cent. is bought through the jobbers?

We found for the most part that merchants who sold more than $200,000 of merchandise per year wanted to buy direct. A man who is buying less than $100,000 prefers to buy of the jobber; he wants to keep his stock down and often he is financially weak and leans on the jobber. We estimated that there are 1,140 stores that do more than $200,000 of business each, and these stores together do 43 per cent. of our $2,094,000,000. The multitude of textile stores that do under $100,000 of business, we estimated, do 47 per cent. of that total. This leaves 10 per cent. for the class between. In this class, if a merchant is a plunger by nature, he buys large quantities and goes direct; if he is conservative, he keeps his stock down by buying from the jobber.

If the manufacturer of a convenience line of hosiery and underwear had to take his choice between direct sales and jobber sales, the jobber sales would offer the larger opportunity. But, of the 43 per cent. that definitely seeks direct sales, nearly half is done by 200 stores, each one of which does over a million dollars. Now these stores are so insistent on buying direct that the jobber ordinarily cannot sell them, and recognizing this is usually willing that the manufacturer sell them direct.

Hence, as a merchandising policy for a manufacturer of convenience goods, it seems advantageous to sell direct to the 200 stores that do over a million dollars of business each and use the jobber for the rest of his business.

In the department store investigation we asked 394 merchants their attitude on carrying branded merchandise. Two-thirds of these merchants replied favorably. These figures gain their significance from the fact that it was generally into the large cities and to the large merchants within those cities that we went. If we had asked 4,000 merchants, the per cent. of favorable replies would have been much higher, for smaller merchants in general are more favorable.

Analyzing the objections, we found that 54 per cent. objected because the margin is narrower in advertised lines and 35 per cent. objected on the ground of brand,—that is, they preferred to sell their own private brands, which in many cases meant that their cost of doing business was so high that it was necessary to sell noncompetitive goods to get over the high cost of doing business.

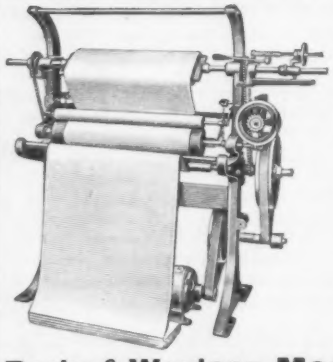
In general, the key to attitude on advertised brands is cost of doing business,—the higher the cost, the less friendly the store to handling advertised goods.

In merchandising we are apt to make several mistakes in estimating the relative importance of merchandising factors: First, we often overestimate the importance of the few largest department stores. The five largest stores do a considerable volume of business, yet after they are thrown out there is $2,000,000,000 of dry goods and ladies' ready-to-wear business left. Second, in the same way we are likely to overestimate the relative importance of the three or four largest jobbers. Third, we are likely to overestimate the importance of the Eastern market. If a line be drawn from Portland, Me., to Wilmington, Del., we include a district that we may call metropolitan, dominated by New York, Philadelphia and Boston. The total volume of department store trade in this section, including these three major cities and the various minor ones within the territory, amounts to 21 per cent., and 21 per cent. is a considerable matter. But after it is thrown out there is 79 per cent. left. Fourth, we are likely, in our study of retailers and jobbers and territories to underestimate the importance of the consumer.

The consumer is king. His whim makes and unmakes merchants, jobbers and manufacturers; whoever wins his confidence has won the race; whoever loses it is lost.

Mr. Parlin was followed by Mr. Stanley L. Krebs of Philadelphia, whose address entitled "Two Snakes in the Business Brain" was a bright, witty and eloquent presentation of some psychological questions with a business moral. The two "snakes" are Fear and Worry. Happiness and unhappiness are simply states of mind and the only causes of unhappiness, except physical pain, are fear and worry. Mr. Kreb pointed out, using illustrations, the different applications of this theory. He stated that perhaps the most important requiiste for happiness was physical fitness, and as a means of keeping one's body and mind in proper shape to fight fear and worry, he urged the copious drinking of water, at least two quarts of liquid a day.

**LANCASHIRE WINDER**



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Special shaped carbon, black diamond, **pointed tools** for turning paper, rag, corn husk and cotton **calender rolls**, hard rubber, fibre, etc. Manufactured by
**Thos. L. Dickinson, Successor to John Dickinson, 64 Nassau St. New York City**

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**Card Stamping and Repeating**
FOR ALL TEXTILE FABRICS
**Also Repeating for Throw Overs for Fine and French Index**
**315 West Lehigh Avenue • Philadelphia**

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**For Perfect and Economical Results in Speck Dyeing Worsted Piece Goods, use**
**CRYSTAL SPECK DYE**
Covers all vegetable and other specks.
Does not stain white silk threads in goods.
**Worden Chemical Works**
**4 Cedar Street, New York**

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in Cold and Colors for all fabrics
**KAUMACRAPH COMPANY**
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**Elliot Cloth Folder and Measurer**

FOR PRINT WORKS GINGHAM AND COTTON MILLS, BLEACHERIES, ETC., ETC.
Send for circular.
Manufactured by
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**BENJ. BUCKLEY'S SON**
(WM. J. BUCKLEY) *Gun Mill, Paterson, N. J.*
**Manufacturer of all kinds of SPINDLES, FLYERS, RINGS, TUBES, CAPS, etc.**, for Cotton, Silk, Flax, Woolen and Worsted **Machinery.**
Roving Spindles and Flyers a Specialty. Light Forgings.
**REPAIRING OF ALL KINDS**

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**SAVOGRAN**
**Cleans Wool, Floors, Anything**
**INDIA ALKALI WORKS, - BOSTON**

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**The Chicago Portable Watchman's Clock**
Approved by the National Board of Fire Underwriters and accepted by all Insurance Companies
**The Perfection of Watchman's Detector Service**
**Simple, Efficient, Tamper-proof, Durable**
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*640 pages 500 illustrations*
*40 plates*

The manufacture of woolen, worsted and union yarns and fabrics is covered in one large volume. Beginning with the raw materials there are chapters on Wool Sorting; Scouring and Blending; Carding, Spinning and Twisting; Worsted Yarn Construction; Fancy Twist Threads; Fabric Structure; Weaves; Warp Preparation; Weaving; Weave Combination; Drafting; Pattern Design; Color Applied to Weaves; Compound Fabrics; Fabric Analysis and Calculations; Finishing of Fabrics.

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*Publishers of the Textile World Record*

**144 Congress St. Boston, Mass.**

and a proper system of breathing to insure adequate supply of fresh air; pure air and water being Nature's great restoratives for the nerves. He said the business man should put more of the play spirit in his work, for the spirit in which we do our work determines whether we are fatigued or worried by it. A man will cheerfully row a boat for several hours for pleasure without feeling fatigued or mentally depressed, but a half hour's work turning a grindstone, which requires less physical effort, will tire him out. If a man enjoys his business and approaches its problems in the spirit of an interesting game he will be less apt to worry. The problems of business are not reasons for worry, but reasons for work. Idleness begets fear and worry. In its broader aspects the salvation of the world from the growing feeling of antagonism between rich and poor is in Mr. Kreb's opinion industry and work performed in a cheerful spirit.

C. M. Ripley, of the firm of Richard D. Kimball Co., New York City, then delivered an address on "Competition in Electricity," illustrated by blackboard diagrams. Mr. Ripley presented a number of charts and figures showing that in the City of New York independent power plants were operated in different classes of buildings proportionately to the amount of time they required power for lighting and heating. For example: in railroad stations where power is required practically all the time these buildings are all equipped with independent power plants. Theatres, on the other hand, which require lighting for only a comparatively few hours in the day and only nine months in the year, all purchase their power from a central plant. Between these two extremes are four or five different classes of buildings which he had found by investigation generated their own power or purchased it from the central plant in about the proportion in which they needed power and heat during the day. He said that this same general principle applied to manufacturing establishments and that where lighting and heating were required for a considerable portion of the time it was more profitable to have an independent plant than to buy power. He then took up the question of other uses for steam in the manufacturing processes of the mill, such as dyeing, bleaching, pressing, boarding, etc., as well as heating, and stated as his opinion that where these processes required a considerable amount of steam they were really the main factor and that the generation of steam for power purposes was really a by-product. Figuring the use of steam for heating in the manufacturing processes at 100 per cent. he claimed that the total requirement to include power purposes would be only 104 per cent. In other words, provided a manufacturer required a given amount of steam for his manufacturing processes, he could with an independent plant generate enough for those purposes as well as for his power with an additional 4 per cent.; that is, the high pressure steam would furnish the power and the same steam with reduced pressure perform the manufacturing requirements. In every plant heating is a vital requirement and wherever heat is required in large quantities the heat and power together cost little more to produce than the heating alone. He therefore assumes that it is usually cheaper for the mill to generate its own power and heating than to buy its power and generate its heat. There is a general feeling in recent years that it is usually cheaper for a mill to buy its power than to make it, but he believes that careful investigation would show in very many instances the contrary.

There was considerable discussion following Mr. Ripley's talk by manufacturers who asked for more detailed information.

The last address was delivered by E. S. Bates, editor of the Canadian Journal, on the subject of "Canadian Knit Goods Market."

## THE CANADIAN KNIT-GOODS MARKET AND HOW IT IS SUPPLIED

By E. S. BATES, Editor Canadian Textile Journal

Mr. President and Gentlemen: At the present time, Canada is passing through the greatest crisis in her history and in that passage, every branch of her trade is experiencing conditions unparalleled in the commercial history of the country. In many cases, the business being done is considerably below normal. This is the case in the knit

goods market, but you are all sufficiently cognizant of existing conditions in your country to have an idea of what is happening in the Canadian trade so that a discussion as to what the present situation is, is unnecessary. What the market is in normal times and what it will be after the war is over is a different question, however, and one which I think will be of increasing interest to you knit goods manufacturers here today.

There has been an increasing demand in Canada for all classes of knit goods during recent years, similar to what has taken place in the United States, and this demand is for goods practically similar to what is manufactured in the United States, with perhaps a greater proportion on the heavier lines. The total annual consumption of all classes of knit goods is valued at approximately $33,000,000, of which trade the domestic production supplies about $28,000,000 worth and about $5,000,000 worth is imported each year. Of the imported goods 75 per cent. is made up of hosiery, of which over 50 per cent. is woolen and about 45 per cent. cotton. The total imports of all classes of underwear is valued at approximately $1,000,000 made up principally of woolen underwear of the finer and higher priced grades. Of the total imports those from the United States form about 15 per cent., those from Great Britain about 65 per cent. and those from Germany about 12 per cent. The imports from Great Britain are principally of the high priced lines, mostly men's and women's underwear. Those from Germany principally cotton and woolen hosiery of the cheaper grades and those from the United States principally silk and fancy goods. During the fiscal year ending March 31st, 1914, the total imports of knit goods from Germany amounted to over $600,000, of which over $400,000 worth was cotton hosiery. This trade has now been stopped and will probably remain so in the future, so that the market will have to look elsewhere for the supply to which it has become accustomed.

As I have indicated the big proportion of the consumption is supplied by the Canadian mills, in which practically all lines of knit goods are manufactured. There are in all some 137 knitting mills in Canada, having a total capitalization of approximately $20,000,000. Of these mills 99 are located in the Province of Ontario, 24 in Quebec, 5 in the Maritime Provinces and 9 in the Western Provinces. A number of these mills are comparatively small, catering only to a local trade, but considering the extent of the market the country is well supplied with mills manufacturing knit goods exclusively, or in which knit goods is the principal production. Recent figures as to the weekly production of the various classes of knitted goods manufactured in Canada places the total weekly production of cotton underwear at 11,900 dozen. Of woolen underwear at 15,000 dozen, of hosiery at 25,000, of sweaters at 7,102 dozen, of gloves at 833 dozen, of fleece underwear at 4,200 dozen, of caps, mufflers, etc., at 10,100 dozen and all other knitted goods at 10,000 dozen. In addition to these statistics, there are a number of mills manufacturing specialty lines for which the production is not obtainable and in the case of the fancy goods, such as ties, scarfs, etc., most of the consumption is supplied by the domestic mills. The variety of goods manufactured is wide and the mills cater to practically every feature of the demand, and are ready to take up any specialty lines that become popular, as has been the case during the past two or three years in the manufacture of sweaters, silk goods, etc. In the case of underwear and other staple goods the demand is steadily increasing. The West is served almost entirely by the Canadian mills and is today one of the biggest features in the knit goods market of the country. The big proportion of the demand is supplied through the wholesale houses, practically all the smaller mills disposing of their product through this means. A number of the larger mills sell direct through their own travelers, while others sell through jobbers and commission houses to both the wholesale and retail. Methods are very similar to those in the United States and in this regard United States manufacturers have the advantage over all other foreign manufacturers. The trade nuisances with which you are all familiar and which you are endeavoring to stamp out here are prevalent in varying degrees in Canada but steps are now being taken to standardize methods along lines similar to which is being done by this Association.

For a time previous to the outbreak of war there had been a slackening demand for all classes of dry goods owing to the adverse conditions prevalent throughout the country, but, in the meantime, stocks have been reduced to a very satisfactory level and reports from wholesalers in all parts of the country indicate that the market must soon become active again and in the event of a satisfactory crop next fall it is freely anticipated that the demand will be greater than ever. That Canada will undergo a period of great commercial activity after the war is assured and in that prosperity the knit goods trades will have their share. Authorities are looking forward to a big increase in immigration and the country will be better prepared to absorb that immigration than ever before in her history. There will undoubtedly be an increasing demand for the development of our natural resources, and incidentally a greater flow of capital into the country, a greater expenditure on the development of industrial Canada and naturally a greater market for all classes of goods. Canada stands now practically where this country stood after the Civil War when the United States underwent the greatest industrial development in her history. Experiences of other times reflect the same situation all indicating that Canada will be a big factor during the next few years. One thing is certain, and that is, that there will be a closer trade relationship between Canada and the United States. This is already foreshadowed by the number of American industries locating branch plants in Canada and this feature will undoubtedly become more evident as soon as normal times begin to appear. The knit goods market offers its opportunities to you; conditions are in your favor and the whole situation deserves your closest attention.

## FACTS AND GOSSIP.

Rhode Island, Central Falls. An overtime schedule is being maintained in the carding, spinning and knitting departments of the Blackstone Stocking Company to replace the goods destroyed in the recent fire. It has not been fully decided as yet what will be done with the building damaged by the fire.

Rhode Island, Pawtucket. The Newport Underwear Mills are manufacturing men's and boys' ribbed union suits on 46 knitting machines and 65 sewing machines, using electric power. The capital stock of this concern is $175,000. Walter H. Stearns is president and treasurer, and J. T. Lyons is manager and buyer.

Tennessee, Chattanooga. W. C. Kyle has sold his interest in the new Nick-a-Jack Hosiery Mills to Charles R. Hyde and T. Walter Fred. The officers are now Charles R. Hyde, president; T. Walter Fred, treasurer and buyer; and J. O. Dills, superintendent. This company was organized several months ago by Messrs Kyle and Fred and a plant of 10 knitting machines was established to manufacture men's artificial silk half hose. Manufacturing started about February 15. Robert P. Steele and R. T. Edwards sell the product.

Vermont, Northfield. An electric motor has been installed in the plant of the Vermont Hosiery & Machinery Company on trial and it is reported that if the test proves satisfactory the plant will be changed to electric power.

Virginia, Franklin. The Sunny South Overall Company, Inc., may install knitting machinery and is interested in information on this equipment.

*Wisconsin, Two Rivers. Negotiations have been opened for the sale of the plant of the Zula Knitting Company, bankrupt, to parties who contemplate starting up the mill. The last of the unfinished product has been run through the machinery and the mill has closed down.

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**Personals.**

Louis Hudson, overseer of knitting at the James J. Regan Manufacturing Co., Rockville, Conn., has resigned his position with that company.

William H. Bauer has accepted a position in charge of knitting at the Gotham Underwear & Bleach Works, Hamburg, Pa. He was formerly employed at the Brown-Durrell Co., South Framingham, Mass.

George A. Vosburgh has accepted a position as superintendent of the ribbed underwear plant of Julius Kayser & Co., Brooklyn, N. Y. He was formerly employed at the Lebanon Mill, Pawtucket, R. I.

W. T. Adams, superintendent of the Westminster Knitting Mill, Westminster, S. C., has resigned his position with that company to accept a similar one with the Vandois Knitting Mill, Morganton, N. C. He succeeds F. J. Lacey.

P. J. O'Brien has been appointed overseer of knitting for the Fain Knitting Mill, Brooklyn, N. Y. He comes from Utica, N. Y.


PURO

Actual Size 7" High

# Stop That Waste of Water

Did you ever stop to think how many gallons of water are wasted by the old fashioned drinking faucet?

Puro saves 35% of that wasted water.

Puro does away with the old fashioned unsanitary tin-cup; it is the Safety Sign of pure water in every factory where it has been installed.

Employees like it because it is clean—because it insures a clean, fresh drink—because it saves their time.

The Puro Sanitary Drinking Fountain has a positive control that eliminates spurting.

Easily attached—positively fool-proof—and nothing to wear out.

An excellent investment—for shop and office alike—and one that pays dividends in real money on water saving and better workers.

Write today—now—tell us how many men you have and the number of departments.

We'll make you a complete estimate on an installation—we will also make you a special proposition for a try-out in any one department.

**"PURO-FY" Your Water Supply**

**Puro Sanitary Drinking Fountain Co.**

SAFETY FIRST **PURO** ECONOMY ALWAYS

127 Main Street HAYDENVILLE, MASS.

# Wyandotte Textile Soda

The use of Wyandotte Textile Soda is not limited to one department of the mill, but the principle which it represents may be profitably applied to several different processes.

For scouring raw wool Wyandotte Textile Soda brings the wool out absolutely white, soft and pliable without impairing any of its natural life elasticity.

For washing woolen yarns Wyandotte Textile Soda thoroughly removes all grease and other matter, but it does it without the least injury to the tensile strength of the fibre. The thoroughness with which it cleans insures a wool that takes the dye evenly with no streak or discoloration. It also imparts that soft, lofty feel and appearance so much desired. Its action on worsted yarn is equally desirable, bringing it out a clear, snowy white, not dingy or gray white.

For washing woolen or worsted cloths its superior action is easily apparent in the bright colors. Then too, the fact that Wyandotte Textile Soda will not strip colors is of great value where you are using resist dyes on worsted cloths, bringing their colors out bright and clear. Both for washing hosiery and for dyeing the same with sulphur colors equally beneficial results are obtained.

Further information always gladly supplied. Order from your supply house.

**The J. B. Ford Co., Sole Mfrs.**
**Wyandotte, Mich., U.S.A.**

This Soda has been awarded the highest prize wherever exhibited

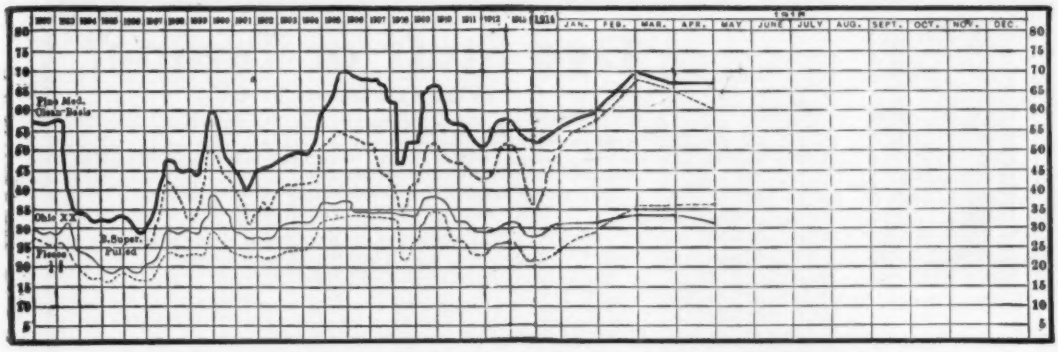


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

## THE WOOL MARKET

Unsettled conditions are prevailing in the market for wool. The high prices have made manufacturers unwilling to fill their warehouses and as a result buying has been on a very conservative basis. There are many owners of wool, principally small dealers, who have become nervous over the high prices and the slackening in the demand. As a result there has been considerable pressure to sell, causing an irregular decline. Pulled wool has been particularly erratic, B supers varying 10 cents a pound between different dealers and from day to day. Another depressing influence has been exerted by the state of the goods market. Manufacturers are having an unsatisfactory season, although there are exceptions, these being generally mills that have been successful in securing contracts for army goods for the Allies. There are reports of slight improvement in the demand for goods, but not enough to prevent the wool goods trade from falling far below what is required to keep the mills fully employed.

## WOOLEN.

*Maine, Old Town. The new storehouse to be built by the Old Town Woolen Company will be 30 by 70 feet. Arrangements are now being made for the material.

*Maine, Sanford. In addition to building a new mill to take the place of the present No. 1 Mill, the Sanford Mills will build a second new mill, a new machine shop and a new power station. The new No. 1 Mill, on which work is going forward, will be three stories high, 135 by 169 feet, and will be used for mixing, carding, spinning and weaving. The equipment, which is in use at present in the old No. 1 Mill will be moved into this new building. When this machinery has been moved, the old No. 1 Mill will be torn down and the site used for the second new mill which will be known as No. 2 Mill. This building will be four stories high, 374 by 60 feet, and will be used for wet and dry finishing and dyeing. When this second new building is completed what is known as No. 2 Mill will be torn down and replaced with a new machine shop and power station. George Clark, master mechanic of the Sanford Mills, is in charge of the work, while the plans are being prepared by Frank Clark.

TETRAZO COLORS
FOR COTTON

We offer these products in all shades for the dyeing of cotton in any form. Among them will be found colors specially adapted to meet the various requirements of fastness to light, washing, cross dyeing and fulling.
Shade cards and samples, with full information, cheerfully furnished on application.

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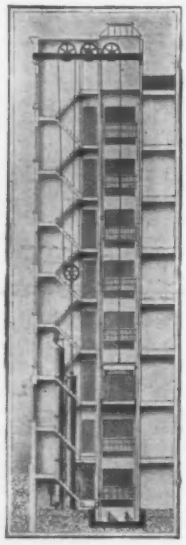

Steam Hydraulic Elevator in a Great Soap Factory in Jersey City

# Dye Stuff or Brains?

## Which Have You?

Look at those big black boilers hot with power out there in your back yard.

And pressing away at 100 and more pounds to the square inch burning to serve you without cost.

And yet—yes, and yet you are about persuaded to buy

The most intricate and complicated of Elevators
The most delicate and uncertain of Elevators
The most bothersome and troublesome of Elevators
The most tinkering and repairing of Elevators

You are thinking of buying An Electric Elevator.

And WHY?

Well, here is a bunch of 21 concerns everybody knows. There are Factories and all kinds of works among the "three sevens for luck." They have the price to hire Brains.

When they needed elevators they got RIDGWAY ELEVATORS. Just mark who they are. CAN YOU FACTORY OWNERS TAKE A HINT?

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|---|---|---|
| R. J. Reynolds Tobacco Co. | Proctor & Gamble Co. | United States Steel Co. |
| Packard Motor Car Co. | DuPont Powder Co. | Jos. Benn & Sons |
| Steinway Piano Co. | John Morrell & Co. | Chinese Government |
| Cluett, Peabody & Co. | Onyx Hosiery Folks | General Electric Co. |
| John Wanamaker | United Gas Improvement Co. | Lowell Machine Co. |
| National Cash Register Co. | United States Government | Remington Typewriter Co. |
| International Harvester Co. | Sears, Roebuck & Co. | Consolidated Gas Co. |

Yes, these concerns and a thousand more like them with BRAINS and STEAM, when they needed Elevators.

**Hook'd 'er to the Biler**

## CRAIG RIDGWAY & SON CO.

**Coatesville, Pa.**

**Elevator Makers to Folks Who Know**



# BLEACHERS!

A great opportunity to inform yourselves on the latest in non-injurious bleaching.

Look up our instructive exhibit at the National Association of Hosiery and Underwear Manufacturers, Philadelphia, May 3rd to 7th, and see samples of mill work Peroxide-bleached at cost no higher than chlorine or sulphur.

No new installation required.

Process simplicity itself.

No seconds; no throw-outs; no come-backs.

**THE ROESSLER & HASSLACHER CHEMICAL CO.**

**NEW YORK**

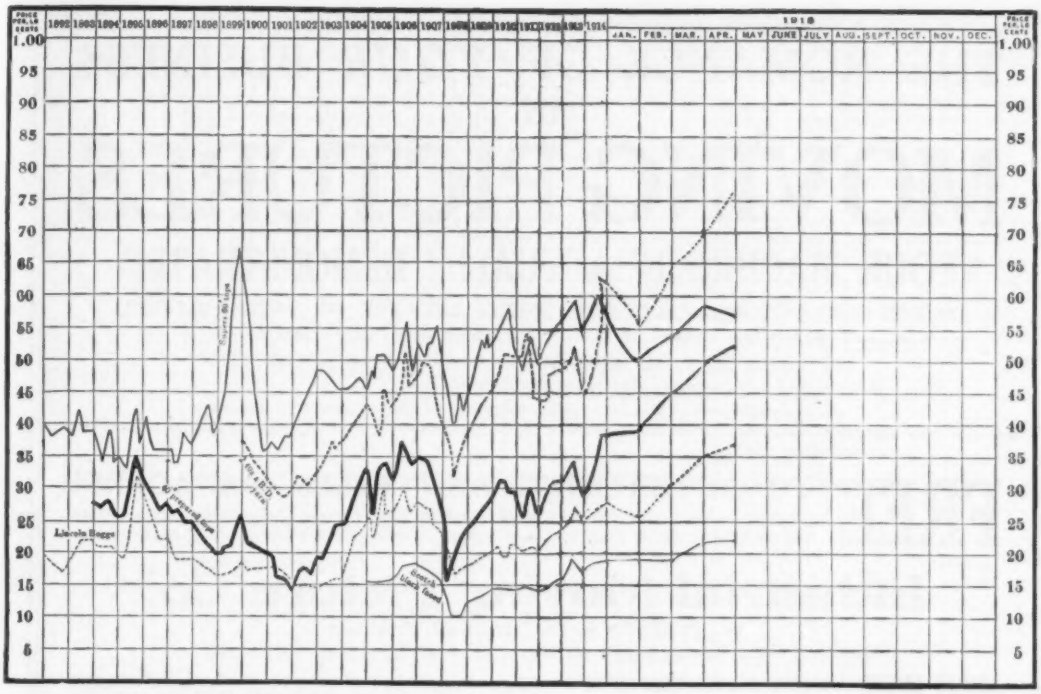


CHART SHOWING COURSE OF PRICES FOR WOOL, TOPS, AND WORSTED YARN AT BRADFORD, ENGLAND

## BRADFORD MARKET

Bradford, Eng., April 26, 1915.

There are several signs of reaction in the demand for khaki and it seems probable that at length crossbred values have found a resting point. But if less dyed wool is being spun more white yarn is being made and there is no lack of employment for machinery. Wool is wanted faster than it arrives and the congestion in the port of London and on the railroads keeps the markets very bare. Values of coarse crossbreds are very strong and 40s tops are now at the price which used to be called the natural level for 60s.

Merino prices have the support of French and Russian demand for dry-combed tops. Spinners who usually work for the coating trade have their hands full of hosiery orders and the dress goods looms require a large bulk of fine counts. Trade is much better for topmakers and spinners than for weaving manufacturers who get only an average profit at most.

Mohair fabrics are to be worn more this year than for some time past and the home demand, coupled with Russian and American orders, has sent up mohair yarn and raised the price of hair in a less degree. Luster English wools are a trifle dearer than a month ago, but very little remains of the English clip.

The height of prices all round adds to the interest and to the dangers of the situation. Affairs are entering as a new phase in which military demand has to be replaced in considerable part by civil demand. A good deal of wool has yet to be bought and it is not to the general interest to see prices materially higher.

---

*Massachusetts, Leicester. Contract for the new finishing room for the Leicester Woolen Company has been awarded to Louis Cromier. For some time past cloth has been woven by the Leicester Woolen Company for the Valley Woolen Mills of Cherry Valley, Mass., and the goods have been taken to Cherry Valley to be finished. This arrangement expires May 1. The plant will be closed for a short time and when it is opened the new finishing room will be completed and the cloth will be finished at the mill instead of being sent away to be finished. It is rumored that additional machinery is also being installed in other departments of the mill.

Massachusetts, Leominster. The Leominster Worsted Company is making alterations and changes to its mill on Adams St. Two unused boilers have been removed to make room for a dyehouse. The concern is busy manufacturing cloth for shoe tops.

THE ROMANCE OF *YOUR* BUSINESS
IN
# MOVING PICTURES
YOUR MACHINERY ACTUALLY DEMONSTRATED

IN THE CONVENTION HALL, IN CONVENIENT THEATRE, OR IN THE OFFICE, CLUB OR HOME OF YOUR PROSPECTIVE CUSTOMER.

*We can find and film the romance of your business, and present your story so that it arouses the buying instinct while entertaining.*

*We can put a perfect machinery demonstration on film so that your customer can see it anywhere, at any time or season—You have the security of knowing that it will always be 100%.*

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**Industrial Moving Picture Co.**

WATTERSON R. ROTHACKER, President

*THE SENIOR SPECIALIST IN MOVING PICTURE ADVERTISING*

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When You Buy Garland Rawhide Loom Pickers You Are Getting the

*Best HIDE Quality*

The hides of which our rawhide looms pickers are made, are the first selection from well known brands of Buffalo hides which are recognized as always of superior quality. *The quality of these hides*, together with the careful selection made for us as the hides go through the curing process, insure us *the best hides to be obtained*, and hides which are of uniform quality.

*May We Send Samples?*

GARLAND MFG. CO.
SACO, MAINE

TRADE MARK

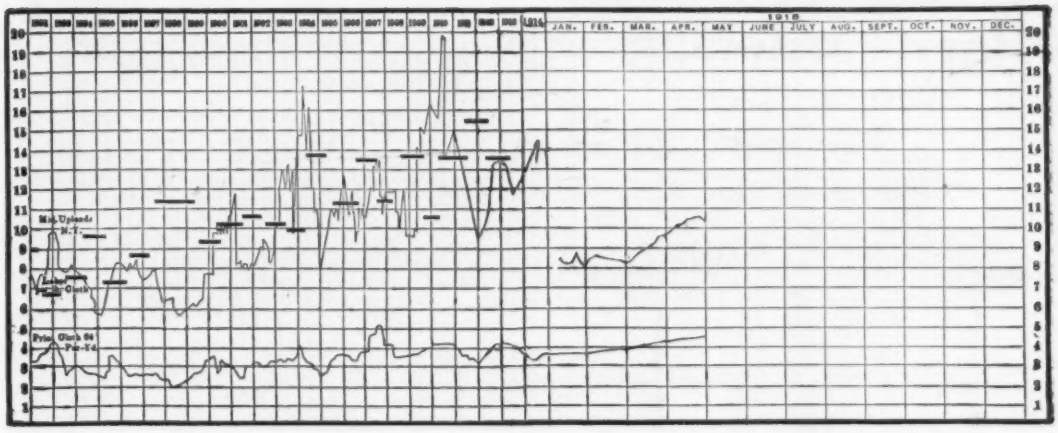



CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE

*The short, heavy, horisontal lines indicate the size of the cotton crops in millions of bales.*

## THE COTTON MARKET

After a pronounced advance, as indicated on the chart, the cotton market shows signs of weakening, and there is a belief that the statistical position does not warrant the price level that has been reached. The British embargo on German and Austrian trade is curtailing the consumption of cotton to a marked degree and with a visible supply of over 7,000,000 bales, with fully 3,000,000 bales more to come into sight, the bears have strong arguments with which to support their belief in lower prices. Weather conditions have been favorable to the new crop in the South. The movement into sight from August 1 to April 30, as reported by the "Chronicle" for the past two years, is as follows:

| Year | Bales |
|---|---|
| 1914-15 August 30 ..... | 13,841,071 |
| 1913-14 August 30 ..... | 13,826,244 |

The same authority estimates the world's visible supply of cotton of all kinds on April 30 at 7,190,779 bales as compared with 5,274,267 on the corresponding date of 1914; 4,631,070 bales in 1913 and 4,916,221 bales in 1912.

## COTTON.

.....

**New Mills.**

Georgia, West Point. A new half million dollar cotton duck mill is to be built by the West Point Mfg. Company at a location just south of West Point and a few miles above Columbus. Plans for the plant, which will have 20,000 spindles, are being made by J. E. Sirrine of Greenville, S. C. The officers of the West Point Mfg. Company are J. B. Richmond, president; Geo. H. Lanier, vice-president and general manager; H. S. Sears, treasurer; and L. Lanier, Jr., agent and buyer. Wellington, Sears & Co., Boston, are the selling agents. At the treasurer's office in Boston it was stated that arrangements would be completed and the new mill constructed and equipped as rapidly as possible. The West Point Mfg. Company manufactures cotton duck and established a branch mill at Shawmut, Ala., a few years ago.

*Pennsylvania, Philadelphia. Manufacturing will be started in about four weeks by Joseph Derk & Company. who have taken over the buildings at Berkeley and Wayne Ave., Wayne Junction, formerly occupied by the Fetterolf Carpet Company. The new concern will manufacture specialties, upholstery fabrics and draperies and will start with 10 looms, buying 20/1 to 80/2 cotton yarns and various kinds of filling. The capital stock is $10,000. Joseph Derk is president, and Jonathan W. Barber is treasurer and buyer.

.....

**Enlargements and Improvements.**

*Georgia, Augusta. Changes and improvements being made in the plant of the Sibley Mfg. Company, recently noted, comprise the installation of an entire new set of pickers and in addition 86 new 40-inch cards. This equipment has been purchased. T. S. Raworth is president and treasurer, and H. C. Chaffee is secretary.

Georgia, Canton. Improvements are being made by the Canton Cotton Mills including the installation of new cards, and a new opening and blowing system. A new slasher room also is being built.

Georgia, Columbia. The Swift Spinning Mills, manufacturers of cotton yarns, have just purchased 14 new cards. This installation will not, as the company states, increase the pound production of the plant but will improve the grade of the yarns, which are sold through Van Court Carwithen, Mariner & Merchants Building, Philadelphia.

**Baer's Automatic**
**Yarn and Cloth**
**Tester**
**MOTOR DRIVEN**

**Sold Exclusively Through**
**ALFRED SUTER**
**Textile Engineer**
**200 Fifth Ave., New York**

**The Metallic Drawing Roll Co.**
**INDIAN ORCHARD, MASS.**
**MANUFACTURERS OF**
**Metallic Rolls**

**Especially adapted for Cotton Mills. 25 to 33 per cent more Production Guaranteed. Weight Reduced 33 to 50 per cent. No Leather Covering Bill.**

**WRITE FOR PARTICULARS**

*Georgia, Chickamauga. New equipment to be installed by the Crystal Springs Bleachery Company consists of a few spinning frames that will be installed better to balance the departments. This is the only change under way at present.

*Georgia, Forsyth. The addition to be built to the Ensign Cotton Mills will be constructed during the spring. About 6,000 spindles for manufacturing 4s to 14s single yarns, tubes, cones and skeins will be installed, giving employment to about 75 additional hands and doubling the capacity of the plant. Ground has already been broken for the foundation. Besides enlarging the plant the concern will build a number of new houses for the additional employes, also a new church and a school.

*Georgia, Thomaston. Work is going forward on the enlargements which will double the plant of the Thomaston Cotton Mills. As noted in a previous report 15,000 spindles with preparatory machinery will be installed on the completion of the new building and a further installation of 10,000 spindles will be made later on. The equipment has been ordered. The concern has arranged with the Central of Georgia Power Company for 2,000 electrical h. p.

*Massachusetts, Fall River. Repairs have been completed in the Pocasset Mfg. Company No. 2 Mill in which several supporting posts in the card room gave way, allowing the four floors above to sag and damaging a large amount of machinery.

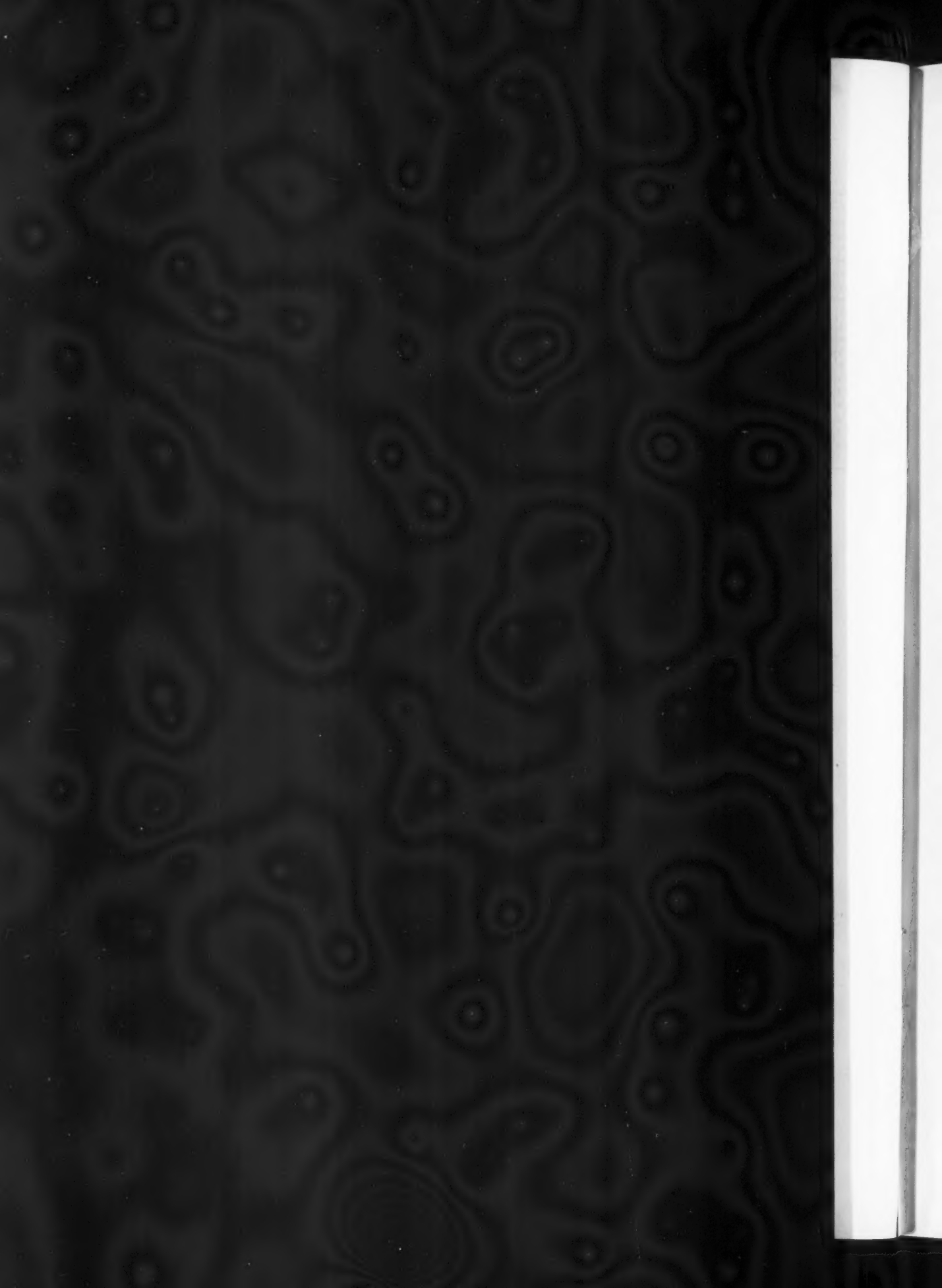
Massachusetts, Fall River. The Kerr Mills of the American Thread Company are making arrangements for converting a square of land opposite the mill into a play and recreation ground for employes.

Massachusetts, Fall River. New machinery is being installed in the Osborne Mills. A considerable amount has been spent for new machinery in the past year.

*Massachusetts, Holyoke. Work on the excavation for the foundation for the new 9-story warehouse for the Lyman Mills was started during the week by the Casper Ranger Construction Company. The remainder of the old cloth room building was torn down to make room for the new structure. This improvement will cost in the neighborhood of $50,000.

Massachusetts, New Bedford. A new mill, 160 by 140 feet, 3 stories and basement, of brick construction, is to be built for the Kilburn Mill. An addition also is to be built to the storehouse, 100 by 120 feet, of brick, 3 stories high, and alterations are to be made in the power department. The cost of the new construction will be about $150,000 and the contract has been awarded to the J. W. Bishop Company, Worcester, who plan to begin work at once and to complete the contracts about November. The Kilburn Mill manufactures fine, all combed cotton yarns, 30s to 120s, on present equipment of 120,000 ring spindles.

Mississippi, Winona. Humidifiers are being installed in the Winona Cotton Mills, manufacturers of sheetings and drills.



TRADE MARK
"NIGRUM" REG.U.S.PAT.OFFICE **Saddles and Bearings**

**Require No Oil—No Grease, THEY ARE Self-Lubricating**

Besides being a form of insurance against "spontaneous-combustion" fires—caused by over-heated bearings—these "Nigrum" Bearings and Saddles save you:

(1) The cost of oil and the time consumed in oiling;
(2) The cost of removing oil and grease spots from textiles;
(3) The loss on seconds caused by dripping oil;
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**For Heavy Work We Recommend Our GRAPHITE and BRONZE BEARINGS**

They are efficiently economical on spinning frames, winding machinery, loose pulleys, friction clutches, etc. They give perfect lubrication with or without oil. (Oil does not injure them).

TRADE MARK
"BOUND BROOK" REG.U.S.PAT.OFFICE

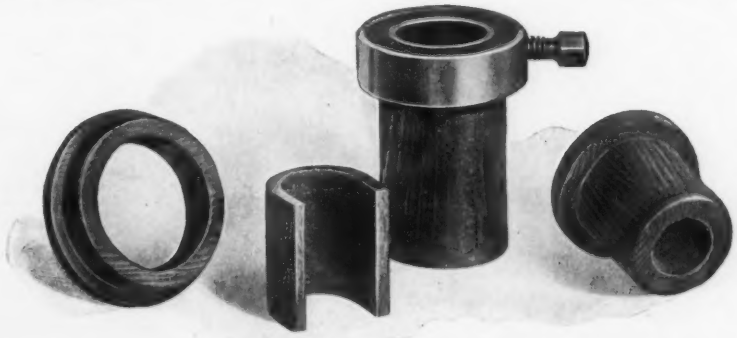
The surfaces are flush, they wear evenly require no refilling, no attention, and will last as long or longer, than any perfectly oiled bearing.

All bearings are made special for each customer. Just tell us your needs.

*Send now for interesting Catalog: "Oil-less Bearings"*

**Graphite Lubricating Co.**

**No. 2 Church Street - - - Bound Brook, N. J.**



**WE ARE SPECIALISTS IN OIL-LESS BEARINGS.—All genuine graphited oil-less Bearings have always been made at Bound Brook, N. J., in the United States of America.**

# MERCERIZED YARNS

Dyers, Bleachers, Gassers.

Dyers of Colors Fast to

SUN AND BLEACHING

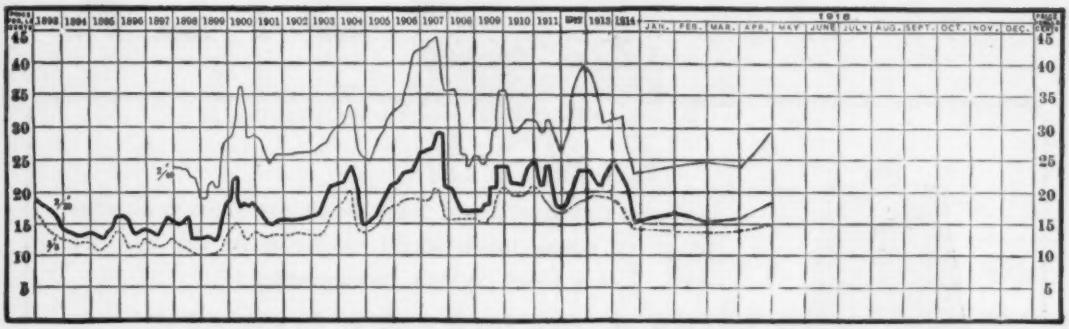
**Aberfoyle Manufacturing Company**

CHESTER, PA.

402 Morris Building
Philadelphia

746 Insurance Exchange
Chicago

# Yarn Department




GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

## COTTON YARN MARKET

The market during April has seen very rapid advances, 2/20s going from 16 to 19 cents and 2/30s from 17 1/2 to 20 1/2 cents. In some instances spinners have turned down offers for the latter count at 21 cents, other sizes advancing in proportion. This increase in price was caused principally by the advance of raw cotton, and by the increased demand for yarns. Whether today's prices will hold remains to be seen, but indications at present points to continued strength and there are few indications that there will be any reaction in the near future. Manufacturers are more active than they were a month ago, although there is still considerable opportunity for improvement. The carpet business has shown improvement. There is a demand for tapes which keeps the mills busy and terry goods continue to do a good business. Some lines of dress goods and men's wear are active and it seems probable that the improvement will continue. The dyestuff situation is not so acute as a few weeks ago and apparently manufacturers are adjusting their requirements to the existing conditions and substituting the cheaper dyes whenever it is possible to do so. There has been considerable buying of two-ply warps in all sizes and for all staple numbers. Since the advance this buying has eased up to a large extent, but if the demand for manufactured goods continues it seems probable that the mills will cover their requirements.

The demand for knitting yarns is improving and considerable quantities of yarns have been sold to the underwear trade at prices slightly under the asking price. These yarns were confined to fine numbers such as 1/24s, 1/26s and 1/30s, some of the business having been reported as taken as low as 20 cents for 24s while spinners have been asking 21 cents for the same number. The knitters of hosiery continue to buy on a hand to mouth basis. This line is also improving. Manufacturers making 220 needle goods are now taking their deliveries steadily. Mercerizers are quite busy, reporting in some instances that they are sold up to June 20th.

### Eastern Cops

| | |
|---|---|
| 6s | 16¼ |
| 8s | 15¾ |
| 10s | 17¼ |
| 14s | 17¾ |
| 16s | 18¼ |
| 18s | 18¾ |
| 20s | 19¼ |
| 22s | 18½ |
| 24s | 19¼ |
| 26s | 20¾ |
| 30s | 21¾ |
| 34s | 23½ |
| 36s | 24½ |
| 40s | 25½ |

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

### Eastern Two-Ply Skeins, Carded Peeler

| | |
|---|---|
| 12s | 18 |
| 14s | 18½ |
| 18s | 19½ |
| 20s | 20½ |
| 24s | 21½ |
| 26s | 22½ |
| 30s | 23½ |
| 36s | 26 |
| 40s | 28 |
| 45s | 32 |
| 50s | 34 |

# SPUN SILK

*Corticelli*

We specialize on 2 and 3 ply Spun Silk yarns in all sizes put up on cones, tubes, spools or skeins in the grey or dyed. Let us figure on your requirements.

Nonotuck Spun Silk is made in the same mill, under the same careful supervision as the famous Corticelli Spool Silk, which has won 40 Highest Awards at Expositions at home and abroad. Send for samples.

**Nonotuck Silk Company**

Corticelli Silk Mills Established 1838 Florence, Mass.

# THE J. R. MONTGOMERY CO.

**Windsor Locks, - Conn.**

MANUFACTURERS OF

**Novelty Yarns** Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

**Cotton Warps** on Beams, Jack Spools, Tubes and Cones. In Fancy Twist, Colors and Printed.

**Mercerized Cotton Yarns** Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

# MONUMENT MILLS, HOUSATONIC, MASS.

HIGH GRADE COTTON YARNS White, Colors, Bleached

On Beams, Jack-Spools, Cones, Skeins and Chain Warps

**FAST-BLACKS & COLORS** | For Woolen Mills a Specialty | WE SELL DIRECT

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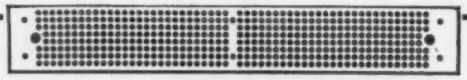
HIGHEST GRADE
BEST VALUE

Mills
RAINBOW, CONN.



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**SPECIALTIES**

FOR ALL PURPOSES
Inquiries Solicited

# THE MERWIN PAPER CO

Address
HARTFORD, CONN.

| | |
|---|---|
| 55s | 40 |
| 60s | 43 |

Eastern Two-Ply Warps, Carded Peeler

| | |
|---|---|
| 2/30s | 24 |
| 2/36s | 25½ |
| 2/40s | 28½ |
| 2/45s | 33 |
| 2/50s | 35 |
| 2/60s | 44 |

## THE PHILADELPHIA MARKET

| | |
|---|---|
| 7s and coarser | 16½ |
| 8s and 9s | 16½ |
| 10s | 17 |
| 12s | 17½ |
| 14s | 18 |
| 16s | 18½ |
| 18s | 19 |
| 20s | 19½ |
| 22s | 20 |
| 24s | 21 |
| 26s | 21½ |
| 30s | 22 |
| 40s | 28 |
| 50s | 35 |

Southern high grade mule yarns:—

Cones

| | |
|---|---|
| 10s | 18 |
| 12s | 18½ |
| 14s | 19 |
| 16s | 19½ |
| 18s | 20-20½ |
| 20s and 22s | 21-21½ |
| 24s | 22 |

Southern frame yarn, lower grades:—

| | |
|---|---|
| 6s and 8s | 16 |
| 10s | 16½ |

Eastern cones (high grade quality):—

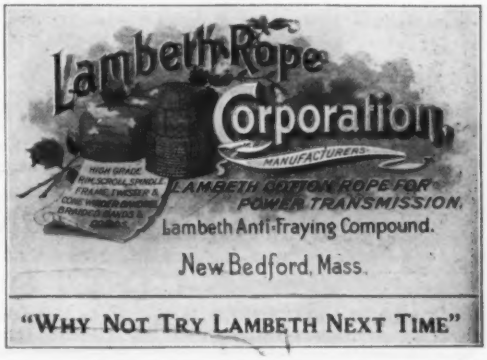
| | |
|---|---|
| 10s | 18½ |
| 12s | 19 |
| 14s | 19½ |
| 16s | 20½ |
| 18s | 20½-21 |
| 20s and 22s | 21½-22 |

Skein yarn (mostly Southern):—

| | |
|---|---|
| 4s and 8s soft | 15½ |
| 10s and 12s | 16-16½ |
| 14s and 20s | 17-18½ |
| 22s | 19 |
| 10/2 | 16 |
| 16/2 | 17 |
| 20/2 | 18-18½ |
| 30/2 | 21 |
| 40/2 | 27 |
| 8/2 | 16 |
| 7/6 | 16½ |

Southern warps:—

| | |
|---|---|
| 10/1 | 15 |
| 14/1 | 16 |
| 16/1 | 16½ |
| 20/1 | 17½ |
| 22/1 | 18½ |


JOHN F. STREET & CO.
Cotton Yarns
PROVIDENCE, R. I.
Providence, Chicago, Philadelphia, New York

Fred Sternberg & Co.
530 BROADWAY, NEW YORK
MERCERIZED GLAZED GASSED } COTTON YARNS

C. MOORE & CO.
Manufacturers of
Twines, Threads and Yarns
Jacquard Harness Twines of all kinds on hand and made to order
S. W. Cor. Fifth and Market Sts., Phila.

JAMES E. MITCHELL CO.
COMMISSION MERCHANTS
COTTON YARNS
122-124 Chestnut Street, - - - Philadelphia, Pa.
Brown Building, 185 Summer Street, - Boston, Mass.

Reels for Cotton WOOLEN AND WORSTED
Patented Hosiery Winders, Cop Winders and Spoolers
LINDSAY, HYDE & CO.,
2124 to 2130 E. York St., PHILADELPHIA, PA.

FIBRE-COVERED SHUTTLES
OF EVERY DESCRIPTION * * * ALSO IN PLAIN
OTTO KUNZE, 2542 Seventh Ave., New York.

J. T. Crocker, Pres. W. F. Stiles, Treas.

**ORSWELL MILLS**

FITCHBURG, MASS.

Capacity, 45,000 Spindles.

**HIGH GRADE YARNS**

From Egyptian and Peeler Cotton, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted

**JENCKES SPINNING COMPANY**

PAWTUCKET, RHODE ISLAND

**COTTON YARNS**

CARDED and COMBED, in Nos. 10 to 120, from PEELER EGYPTIAN and SEA ISLAND COTTONS
MERCERIZED YARNS, IN SINGLE OR PLY, A SPECIALTY

**LINDSAY THOMPSON & CO., LTD.**

FLAX SPINNERS BELFAST, IRELAND

**Linen Weaving and Knitting Yarns**

LINEN THREADS OF EVERY DESCRIPTION

T. J. PORTER & SONS *Selling Agents,* Philadelphia

Large Stocks Quick Delivery

**HUGHES FAWCETT**

115 and 117 Franklin St., New York

**Linen Weaving and Knitting Yarns**

**Linen Jacquard Harness Twines**

And Linen Yarns and Threads for every purpose

**Turkey Red Yarns**

LARGE STOCK PROMPT DELIVERIES

**Industrial Tape Mills Co.**

Jasper and Huntingdon Sts. Phila., Pa.

Manufacturers of

**NARROW FABRICS**

SPOOL TAPES. STAY BINDINGS AND BRAIDS

Also Sole Manufacturers of

**SAXON**

New Guaranteed Non-Shrinkable Tape

**F. W. MAURER & SONS CO.**

MANUFACTURERS OF

**Fringes, Tapes, Bindings & Narrow Fabrics**

Office and Factory: WAYNE AVE. and BRISTOL ST.
PHILADELPHIA

**WEIMAR BROS.** MANUFACTURERS OF **Cotton Mercerized Tapes**

SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES

Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.

**KROUT & FITE MANUFACTURING CO.,**

MANUFACTURERS OF

**Silk, Cotton and Mercerized Narrow Fabrics**

SPOOL TAPES A SPECIALTY

TELEPHONE CONNECTION OFFICE AND MILL ALLEGHENY AVE. AND EMERALD ST., PHILADELPHIA

WRITE — FOR SAMPLES AND PRICES ON SEWING AND SPLICING THREADS IN ALL COLORS TO → TO FLORENCE THREAD CO. FLORENCE, N.J.

HOSIERY AND UNDERWEAR MAKERS WHO WANT TO MATCH COLORS — WRITE

**The Ramie Agency** Manufacturers' Agents New York

**Ramie Yarns and Threads**

HAVE REMOVED TO NEW AND LARGER QUARTERS AT

432 FOURTH AVE. Corner of 29th St.

| | |
|---|---|
| 26/1 | 20 |
| 30/1 | 21 |
| 8/2 | 16 |
| 12/2 | 16½ |
| 14/2 | 17 |
| 16/2 | 17½ |
| 20/2 | 19 |
| 26/2 | 20½ |
| 30/2 | 21½ |
| 40/2 | 27 |
| 50/2 | 35 |

### FOREIGN YARNS

Prices in the Manchester market on all grades of cotton and mercerized yarns have advanced during the past month. The mills are fairly busy. Up to the present time there has been no difficulty in securing English yarns as weekly deliveries are everything that can be desired.

### LINEN YARN MARKET

The demand for linen yarn in Belfast has slackened, but spinners are fully engaged and are not looking for orders from any source. Their books are so filled with orders that they are inclined to discourage inquiries until they have the old contracts somewhat nearer completion. It is believed in some quarters that the high water mark has been reached and that spinners will be more reasonable in their demands. Commission houses that hold yarns below present quotations are inclined to shade prices somewhat as there is a feeling that the high values will not last long. Every one now is looking for an early estimate of the flax acreage, as upon this, together with the prospects of deliveries of flax from the continental ports of Europe will depend the market for yarn. The belief, however, is that the market will ease off during the next few months.

("A" Quality)

| | |
|---|---|
| 35s Lea on cones | 95 |
| 50s Lea on cones | 1.00 |
| 60s Lea on cones | 1.05 |
| 80s Lea on cones | 1.10 |
| 90s Lea on cones | 1.15 |
| 100s Lea on cones | 1.25 |
| 110s Lea on cones | 1.40 |
| 120s Lea on cones | 1.75 |

*Massachusetts, Salem. Work is progressing on the new buildings of the Naumkeag Steam Cotton Company. The Turner Construction Company, who are putting up the spinning mill and storehouse, are now working on the second story of the spinning mill and on the first floor of the storehouse. The westerly half of the spinning mill is to be finished by June 30 and it is understood the whole mill by September 1. The Fred T. Ley Company, contractors, building the new weave shed, are working on the north and south additions and this work is well along.

**Allen Safety Set Screws**

With our process of manufacture, we can make safety set screws much shorter than the diameter of the screws. The entire length of screw is utilized either for solid metal at the point or depth of socket for the wrench. No waste space filled with chips as in broached screws. We are prepared to make, promptly, special safety set screws to meet your requirements in diameters from ¼ to 1¼ in. Any length, point or thread.

Send for Circular No. 6 and free sample screws for testing

**The Allen Mfg. Co.** Hartford, Conn.
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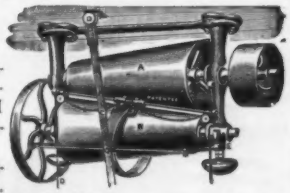
**Variable Speed Countershafts**

Evans Friction Cone Pulleys will drive your machines at any desired speed from 1 to 6 by simply pulling a cord.

They are guaranteed to do your work.



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Over 10,000 Sets in operation in this Country and Europe.

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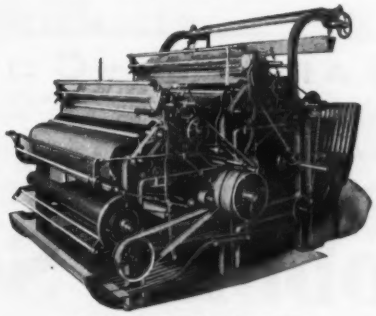
**EVANS FRICTION CONE COMPANY**
G. Frank Evans Newton Center, Mass.

**Wool Burring and Picking Machinery**
**Cloth Finishing Machinery**



Double Cutter Woolen Shear

**CURTIS & MARBLE MACHINE CO., WORCESTER, MASS.**

## COTTON MILL NEWS

New Hampshire, Manchester. Work has been started on two new cotton storehouses for the Amoskeag Mfg. Company to be erected at the south end of the present cotton sheds in the Coolidge Mill yard. They will be 80 by 80 feet each.

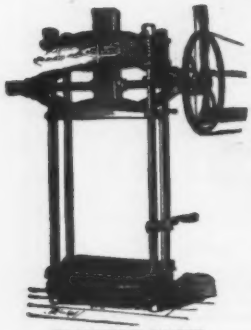
New Hampshire, Nashua. Contract has been awarded by the Nashua Mfg. Company for the construction of a new warehouse to be 320 by 145 feet, 8 stories high, of concrete construction. Preliminary work on the addition has been started. The building will be located on Myrtle St. The Turner Construction Company, of New York, has the contract. The building will be the most modern type and will cost about $200,000, it is reported.

New Hampshire, New Ipswich. The Columbian Mfg. Company plans to do considerable new construction work at the branch mill here as soon as the frost is out of the ground, including the building of a penstock from No. 3 Mill to No. 2 Mill, a distance of 2,700 feet. The main mill is at Greenville. F. W. Ely is buyer.

New Jersey, Sussex. A. S. Anable, proprietor of the Sussex Mills, has purchased the mill property occupied by the concern and will make important improvements and enlargements in the near future. The plant contains 28 broad and 80 narrow looms, including 50 jacquard looms, weaving towels and Terry cloth novelties. The New York office is at 50 Leonard St.

*North Carolina, Albemarle. Construction contract for the new No. 5 Mill to be built by the Wiscassett Mills Company has been awarded to Holbrooks & Bradshaw, of Salisbury. Mr. Holbrooks will superintend the work and will spend much of his time at Albemarle while the mill is in course of construction. The operation will be started at once. The new mill will be a 12,000-spindle enlargement and will be built just across Town Creek at the rear of the present group of mills belonging to the company.

*North Carolina, Marion. Machinery is being started up in the plant of the new Clinchfield Mfg. Company, which has been under construction for the past year. Convertible cotton fabrics will be manufactured on 26,000 ring spindles, and 600 automatic looms, operated by steam power. The capital stock of the company is $800,000. D. D. Little, of Spartanburg, S. C., is president and treasurer; and Hugh F. Little is agent and buyer. Baldwin & Leslie, N. Y., will sell the product.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BALING PRESSES
ARE THE STANDARD
Hydraulic or Knuckle Joint
Any Size Any Power
Boomer & Boschert Press Co.
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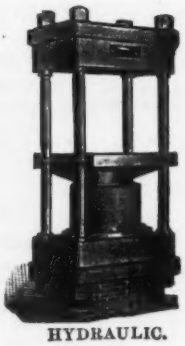
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TRADE MARK
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HAND KNOTTERS AND WARP TYING MACHINES

Dobbins Soap Mfg. Co.
PHILADELPHIA
Makers of Soaps Especially Adapted for All Kinds of Textile Mfrs. Use. Send for Sample.

## COTTON MILL NEWS

*North Carolina, Asheville. Construction contract has been awarded by the French Broad Mfg. Company for the enlargements recently noted, to T. C. Thompson & Bros., of Birmingham, and Charlotte. Plans were prepared by Lockwood, Greene & Co., Boston and Atlanta, and provide for a 5,000-spindle spinning mill, to be 169 by 104 feet, 2 stories high, of standard mill construction, and a warehouse, 100 by 100 feet, 1 story high, of reinforced concrete. 6s to 12s yarns are to be manufactured in the spinning mill and the building will be so constructed that it may be increased to have a capacity of 12,000 spindles. The warehouse will also contain the opening machinery and waste machinery. Recently new bleaching and finishing equipment was purchased, largely increasing the capacity of the converting plant and enabling the company to finish sheetings and pillow cases in addition to its lines of quilts.

*North Carolina, Bessemer City. The Gambrill & Melville Mills, of Havre de Grace, Md., are installing new machinery in the Harborough Mill and the Sanders Mill here which were taken over several months ago. It is expected these plants will be in operation by June and probably the spinning department will be in operation some weeks earlier.

*North Carolina, Kannapolis. Contracts have been let for the new 2,000,000 gallon filter plant for the Cannon Mfg. Company, also for the construction of new buildings for the operatives, as outlined in a recent report.

*North Carolina, Thomasville. No confirmation could be received of a report that an addition to its plant is planned by the Amazon Cotton Mills. Twenty-one new cards and 8 new combers are being added at present and a new packing house is being built.

Pennsylvania, Philadelphia. The Schadewald Mills, Third and Huntingdon Sts., manufacturers of hair cloth, bed spreads and quilts, will add about 25 Crompton & Knowles 72-inch, 4 by 4 box looms, and are advertising for this equipment.


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wherever a count or measurement in any unit is of value in mill management. Built to meet the needs of exacting conditions, you can depend upon their count, apply them easily to all classes of machines and profit largely from the savings effected over other counting methods.

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Wm. V. Threlfall - - - - - Marshall Bldg, Boston
Charles Hammer - - - - 620 West Broadway, New York

**An Accurate and Sensitive Balance for Textile Use**

Working parts and graduated beam enclosed in glass metal case.

**Style No. 5020**

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Torsion Balances used by National, State and Municipal Governments, United States Appraisers Stores, Manufacturers and the trade. *Write for Textile Pamphlet.*

**THE TORSION BALANCE COMPANY**

Factory, Jersey City, N. J. Office, 92 Reade St., New York

*Pacific Coast Branch - San Francisco, Cal.*

# Badger Quality Products for Textile Mills

We have the finest equipped sheet metal and coppersmithing plant in New England and can give prompt attention to orders of all kinds for

**Dye Kettles, Copper Vats, Ventilators, Fire-Proof Windows, Copper Expansion Joints**

These new expansion joints in particular should interest every mill engineer as they are made of corrugated copper and cannot leak. They are unequalled for taking up expansion in steam, hot water, or gas pipe lines and they never require packing or attention of any kind.

Let us send you our booklets on our various products. Write now to

**The E. B. Badger & Sons Company**

**73 Pitts Street, Boston, Mass.**

50-38

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## PHILADELPHIA

**Manufacturers of**

**PICKERS**—Lumpers; Rag, Burr, Wool, Cotton, Jute, Fearnaught and Garnett Pickers; also Rag, Carpet and Jute Shredders.

**WILLOWS** Continuous Cotton Stock Opening, Cleaning, Metal Extracting and Condensing Outfit; also Square Box and Cone Willows or Dusters

**GARNETT MACHINES**—For carding cotton and woolen waste clippings, etc.; also for manufacturing cotton, wool and jute batting or felts.

**FEEDS**—Self feeds for cotton, wool, worsted or jute; also Camel Backs, Blamires and Apperlys.

**METALLIC BREASTS**—Burring Machines and Self-Stripping Feed Rolls for Cards and Garnett Machines.

**RECLAIMING MACHINE**—For Opening and Cleaning various kinds of Cotton Mill Waste.

**CARDS**—Woolen, Worsted, Cotton Waste, Shoddy, Hair, Asbestos and Jute Cards; also Special Cards for the manufacture of Wool Hats.

**MULES**—Heavy and Durable for Wool and Waste Yarn.

**TWISTERS**—Plain or Fancy Twisters for Flake, Loop or Bourette Yarn.

**BOBBIN WINDERS**—Automatic Jack Bobbin Builder and Adjustable Creel for different length spools.

**WARPING MACHINERY**—Copper Cylinder Warp Dressers with single and double size pans; beamers; Section and Pinless Warp Mills. Creels and Dresser Spoolers for Wool or Worsted.

**GRINDERS, Etc.** Floor, Traverse and Portable Grinders for Cards, Garnetts or Rag Pickers; also Turning Rests, Fillet Winders, Card Clothing Stretchers and Cleaning Frames.

*Special Circulars furnished for each Machine*

**Felting Machinery for Manufacturing Soft Felts or Commercial Batts, for Mattresses, Comforts, etc from Cotton, Cotton Waste, Linters, Jute, Wool and Wool Waste**

**A complete line of Machinery for Manufacturing Gunny Bagging from Old Gunny Bagging**
**Complete Equipment for Manufacturing Mop Yarn and Rope from Cotton Waste**

***Estimates and complete plans furnished***

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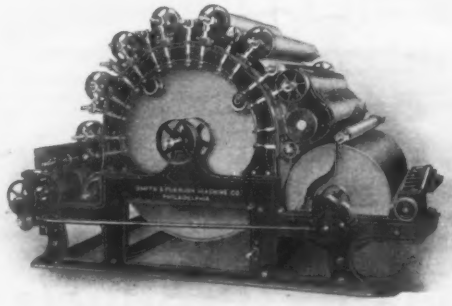
## CARDS

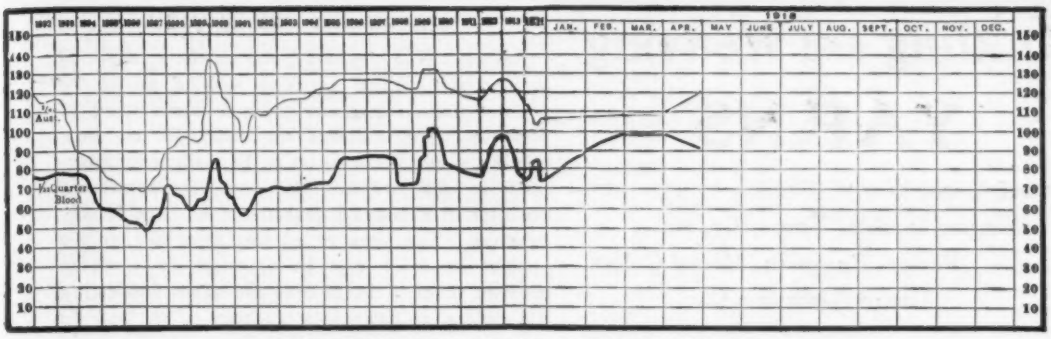
One of the large number of styles we build



**Send us your specifications for Woolen or Worsted Cards**

**First Breaker Card,—Style No. 6**

**S. K. F. Self-Aligning Ball Bearings on Main Cylinders**
**Self-Aligning Sleeve Bearings on all cylinders**
**Case Hardened Journals on fast running rolls**
**New, light, undentable cast iron Workers**
**Convenient and positive adjustment**
**Many new and improved features**




GRAPHIC CHART SHOWING RANGE IN PRICE OF WORSTED YARN.

## WOOLEN AND WORSTED YARN MARKETS

Spinners of worsted yarns, especially those in the weaving end, report that business is rather slow. Manufacturers are using up old contracts and are not interested in new business or stock lots of any kind. Dress goods manufacturers seem to be in a much better position today than the men's wear trade although they do not seem to be making any inquiries for yarns except in the line of woolen, novelty and cotton yarns which they are using in a line of poplins that seem to be the goods wanted by the buyers at this time.

Conditions are reported as flat in knitting yarns. Some of the knitters are starting to specify on contracts which they placed when prices were lower than they are today. On account of poor business they have been left untouched until the present time. Specifications are coming in quite freely showing that business is pickng up some, but few new orders are placed. There seems to be a dvided opinion as to whether prices will be lower or higher, the market being at a point where it will turn either for higher or lower prices.

### BRADFORD SPUN YARN

| | |
|---|---|
| 2/12 to 2/16 low common | 75-80 |
| 2/20 to 2/24 low 1/4 | 82½-85 |
| 2/20 to 2/25 1/4 blood | 85 |
| 2/26 to 2/28 1/4 blood | 85-87½ |
| 2/32 1/4 blood | 87½-90 |
| 2/20 3/8 blood | 87½-90 |
| 2/26 3/8 blood | 90-92½ |
| 2/32 3/8 blood | 92½-95 |
| 2/36 3/8 blood | 95-97½ |
| 2/40 1/2 blood | 1.05-1.07½ |
| 2/40 delaine | 1.07½ |
| 2/50 delaine | 1.12½-1.15 |
| 2/40 Australian | 1.17½-1.20 |
| 2/50 Australian | 1.30-1.35 |
| 2/60 Australian | 1.36-1.41 |
| 3/30 and 3/32 luster | 95-97½ |
| 3/36 luster | 1.10-1.12½ |

### KNITTING YARNS

Dyed and Bleached—Bradford System

| | |
|---|---|
| 2/7s straight 1/4 blood | 92½-95 |
| 2 and 3 ply 10s-20s straight 1/4 blood | 95-97½ |
| 2 and 3 ply 20s-24s straight 1/4 blood | 97½-99½ |
| 2 and 3 ply 24s-28s straight 1/4 blood | 99½-1.01½ |

(Reduce 8c. for yarn in oil)

### FRENCH SPUN YARN

| | |
|---|---|
| 1/20 1/4 blood | 87½-90 |
| 1/20 high 1/4 | 90-92½ |
| 1/20 3/8 | 92½-95 |
| 1/20 high 3/8 | 95-97½ |
| 1/20 1/2 blood | 97½-1.00 |
| 1/30 1/2 blood | 1.00-1.02½ |
| 1/40 1/2 blood | 1.05-1.07½ |
| 1/50 delaine | 1.10-1.12½ |
| 1/40 Australian | 1.05 |
| 1/50 Australian | 1.20-1.25 |
| 1/60 Australian | 1.25-1.30 |
| 1/70 Australian | 1.30-1.35 |

For two ply knitting twist add 5c. additional to above prices.

For two ply weaving yarns add 7 1/2c. additional to above prices.

### FRENCH SPUN MERINO YARNS—FINE ONE-HALF BLOODS

Standard Grade

| | |
|---|---|
| 1/20 50/50 White Merino Cop | 72 |
| 1/30 50/50 White Merino Cop | 74 |
| 1/40 50/50 White Merino Cop | 76 |
| 1/20 60/40 White Merino Cop | 77½ |
| 1/30 60/40 White Merino Cop | 79½ |
| 1/40 60/40 White Merino Cop | 81½ |
| 1/20 70/30 White Merino Cop | 83 |
| 1/30 70/30 White Merino Cop | 85 |
| 1/40 70/30 White Merino Cop | 87 |
| 1/20 80/20 White Merino Cop | 88½ |
| 1/30 80/20 White Merino Cop | 90½ |
| 1/40 80/20 White Merino Cop | 92½ |
| Sliver and Sanitary Mixes | 3c. more |
| Coning on 1/20 | 2c. more |
| Coning on 1/30 | 3c. more |
| Coning on 1/40 | 4c. more |

# Knitting and Weaving YARNS

**Cones,** Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment

**EDWARD S. HYDE**
**226 CHESTNUT STREET**
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**William Whitman Co.**
COMMISSION MERCHANTS
**COTTON and WORSTED YARNS**
BOSTON NEW YORK PHILA. CHICAGO CHARLOTTE

**JAMES LEES & SONS CO.**
MINERVA MILLS
**Spinners of WORSTED YARNS**
For Weaving and Knitting
In the Grey and in all colors and mixtures
Philadelphia Office: 627-29 Bourse Bldg.
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**COTTON YARNS**
of all descriptions
Correspondence Solicited

**HAROLD R. SHIRLEY**
242 Chestnut St., Philadelphia, Pa.
**French Spun Worsted and Merino Yarns**
**Bradford Spun Yarns**
**Woolen Yarns**
**FOR WEAVING AND KNITTING**

S O A P S **HIGH GRADE SOAPS** S O A P S
Bleaching, Fulling and Scouring
Red Oil and Olive Oil Crown Soaps
J. O. Draper Co. Est. 1800 Pawtucket, R. I.


## WOOLEN AND MERINO YARN

Business from the standpoint of the spinners of woolen and merino yarns is looking up at the present time. They are doing a fair amount of business. Specifications on contracts are now coming in and there seems to be a slight improvement in new orders. The prospects for future business in almost all quarters looks considerably brighter. The sizes called for, especially in dry spuns, run from 2/9s to 2/12s at 62 cents in medium shades. Skein dyes are again duplicating old orders, as there is a tendency to go back to the higher grades of merchandise due to the slight reduction in the price of wool stock. In the regular skein dyed yarns the spinners are running mainly on counts ranging from 18 to 23 cut inclusive, in two-plys. There are a few fancy shades being used, but an additional charge of 2 1/2 cents is made for these colors, as a lighter mixed stock is used. There is also an increasing demand for oxfords, both in wool and merino, in heavy and fine sizes. Medium grades of heather and fancy mixes, together with a combination yarn of wool and silk and wool and artificial silk, is also in good demand.

Some large contracts have recently been placed for woolen weaving yarns and there is a constant inquiry for these yarns the principal size being asked for is 2/30 cut.

WOOLEN AND MERINO YARNS

| | | | |
|---|---|---|---|
| 2/20 Light Grey Mixed | 80% | 20% | 65 |
| 2/20 Light Grey Mixed | 90% | 10% | 67½-70 |
| 2/20 Light Grey All Wool | | | 70-72½ |
| 2/20 Colored All Wool | | | 72½-75 |
| 2/20 Bleached | 80% | 20% | 75 |
| 2/20 Bleached | 90% | 10% | 77½ |
| 2/20 Bleached All Wool | | | 80-82½ |
| 2/23 Colored All Wool | | | 75 |
| 2/23 Bleached 90/10 | | | 85 |
| 2/23 Bleached All Wool | | | 87½-90 |
| 2/25 Light Gree Mixed All Wool | | | 90 |
| 2/25 Bleached All Wool | | | 97½-1.00 |

## THE RAG AND SHODDY MARKET

The markets for both rags and shoddy have weakened considerably and owners of stock have shown more disposition to sell at the decline. The high prices prevailing have caused a stagnation of trade with a result that purchases have been small even after prices have been shaded. Stocks are low and if the market depended on the supply of material a continuance of the boom would unquestionably be in evidence. The shoddy trade has slackened owing to the completion of many large contracts and the failure of spinners to secure new

orders for their product. Wool waste is dull with prices lower. The cotton waste trade has been depressed in spite of the strength of the raw cotton market. We quote as follows:

### SHODDIES AND EXTRACTS

| | |
|---|---|
| White knit | 38-40 |
| Red flannel | 23-25 |
| Red knit | 27-29 |
| Thibelts | 17-18 |
| Fine dark merino No. 1 | 16½-17½ |
| Fine light merino | 29-30 |
| Fine black merino No. 2 | 15-16 |
| Light delaine | 20-21 |
| Mixed delaine | 12-13 |
| No. 1 dark worsted | 16-17 |
| No. 2 dark worsted | 14-15 |
| Black worsted | 18-19 |
| Fine dark worsted clips | 19-20 |
| Blue serge, old | 24-25 |
| New blue clip | 16-20 |
| New black fine worsted clip | 27-28 |
| Light yarn, fine | 28-30 |
| Dark mixed, fine yarn | 22-24 |
| Dark blue hosiery clips, No. 1 | 17-20 |
| Dark blue hosiery clips, No. 2 | 14-16 |

### NEW WOOLEN RAGS

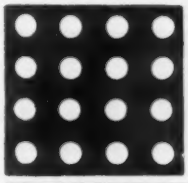
| | |
|---|---|
| Fine merchant tailors | 12-13 |
| Choice light worsted | 16-18 |
| Fine gray worsted | 19-20 |
| Coarse gray clips | 12-13 |
| Fine dark worsted | 13-14 |
| Black worsted | 22-23 |
| Blue worsted | 20-22 |
| Brown worsted | 16-17 |
| Blue serge | 19-20 |
| Black serges | 18-19 |
| Light serges | 20-22 |
| Dark fancies | 11-12 |
| Dark serges | 11-12 |
| New blue flannel | 15-16 |
| New scarlet flannel | 18-20 |

### SOFTS AND KNIT STOCK

| | |
|---|---|
| Soft woolen, best | 7½ |
| Red flannel | 11¾ |
| White softs | 23½ |
| Merinoes, fine light | 19-21 |
| Thibets | 10½-11 |
| Knit stock, red | 14½ |
| Light gray, underwear | 9½-10 |
| Coarse gray | 15 |
| Blue knit | 12-12½ |
| Mixed hoods | 9 |
| White knit stock | 27-28 |

*Rhode Island, Valley Falls. The Hansahoe Mfg. Company, recently incorporated under the laws of Massachusetts with capital stock of $500,000, has acquired the Tilton Mills property. Donald M. Hill, 60 Federal St., Boston, president of the Renfrew Mfg. Company at Adams, Mass., is president of the new concern. Francis U. Stearns, 35 Thomas St., N. Y., treasurer of the Renfrew Mfg. Co., is treasurer of the new concern. The Board of Directors includes Messrs. Hill and Stearns, and Everett P. Hervey of New York, a director of the Renfrew Company, Malcolm G. Chace, of Providence, and Walwin Barr, styler for F. U. Stearns & Company, New York. Preparations are being made to start up the plant as soon as possible on fine cotton goods. Manufacturing is expected to start about June 1.

Woolen and Merino
YARNS
Eaton Rapids Woolen Mills
EATON RAPIDS, MICHIGAN



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Rinsing and Carbonizing
*In Special Metal*
BECKLEY PERFORATING CO.,
Garwood, N. J.

SPOTS
oil, grease and other mill stains quickly and permanently removed by the Sanitex Process. Machines installed in Textile and Knitting Mills, or Spotting done for the trade at reasonable rates.
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Bias and Straight Cut Fabrics and Ribbons.
Embossing and Cutting Customers Own Goods a Specialty.

Spun and Reeled Silks for Electrical Purposes

**Cheney Silk Yarns**

REELED silks and spun silks for electrical purposes can only be properly supplied by those having long experience in the requirements of this trade. Evenness of silk is essential. This is assured by getting the best silks from those people recognized as most reliable. The best is none too good. Any other may cause disaster. Cheney Brothers have had a greater experience in supplying yarns to this trade than any other manufacturer in the United States. Cheney spun and reeled silks are furnished in any form desired—on shuttle bobbins, paper tubes, cones, or warps; also ball warps. Quotations and samples on request.

CHENEY SILKS

CHENEY BROTHERS
*Silk Manufacturers*
4th Avenue and 18th Street, New York

# National Silk Dyeing Co.

**Main Office, PATERSON, NEW JERSEY, 140 Market Street**

**NEW YORK SALESROOM, 60 UNIVERSITY PLACE**

**Skein Silk Dyeing** of every description for every class of textile manufacture.

**Hosiery Dye**—Boil-off, weighting and dyeing, treated especially to meet the requirements of the hosiery and knitting trade.

**Piece Dyeing and Finishing**—All silk and silk mixed goods.

**Printing**—Surface and warp printing.

***WORKS:***

**Paterson, N. J. Dundee Lake, N. J. Allentown, Pa. Williamsport, Pa.**

## THE SILK MARKET

The silk market shows a firm condition, with quite a little activity. This is probably owing to the fact that the manufacturers' stock of the raw product has become depleted to quite an extent and now that the silk industry shows some improvement, they are in the market.

In Yokohama, the market, after a drop in prices a short time ago, is reported quite firm again. The visible stock of silk in Japan is about twelve thousand bales and the syndicate has bought large quantities. This was done to hold prices up.

In Shanghai, the market remains quiet, except on the high grade silks, where activity in buying has developed. The manufacturers of broad silks, especially those making crepe, were the most active buyers and cover deliveries for only a short period in the future.

The Canton market is active and prices advancing. It is reported impossible to receive any offers from the reelers, especially on the coarse sizes, as a good crepe season is expected and those in authority predict that Canton silk will bring good prices for some months to come.

The Italian market is again active, owing partly to a recent decline in exchange. Much activity of buyers is reported and prices are likely to remain firm.

From Lyons, France, comes the report that some of the silk manufacturers' mills are again running full. This condition had not existed since the war began and it is further reported that quite a demand has sprung up for the finished product in all parts of Europe.

Manufacturers in this country are now quite optimistic as to the future, and, unless all signs fail, the outlook for fall and spring business seem of the best. The manufacturers of broad silk, especially in crepe, are very busy. Although the ribbon manufacturers have not yet assumed the activity desired, they are looking forward to a good season later on.

In the dry goods district the demand for the retailers' product has not yet reached the volume that had been expected, but as the season advances, business will probably return to its normal condition. The following broad silks are still popular: foulards, crepes, Grosdeu, Londres, Meteors and Georgette crepe. Taffetas are also having a good call, which is likely to last for some time. Broad silks in stripe and check effects seem to be the reigning styles at the present time. Velvets are also very active and a good season is predicted for this weave.

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Telephone, 6174 Gramercy
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221 Fourth Avenue, New York
RAW AND THROWN SILK
Silk on Spools, Cones, Quills, Beams
DYED SILK FOR ALL PURPOSES
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Howard Building

SAUQUOIT SILK MFG. CO.
INSULATING AND BRAIDING SILKS
ORGANZINE, TRAM AND HOSIERY SILKS
Fast Dye Organzines for Woolen Manufacturers a Specialty
Mills: Bethlehem, Pa., Philadelphia, Pa., Scranton, Pa.
New York Representative, Wm. Ryle & Co., 225 Fourth Ave.
Philadelphia Office, 4015 Clarissa St., Nicetown
Chicago Office, 206 So. Market St.
Boston Office, 78 Chauncy St.

The cotton and knitting manufacturers are quoted as quite active buyers of the raw product and the indications are now that they will use a fairly large amount of silk the coming season.

The silk industry has taken on an activity which all in the trade hope will be a lasting one. Prices current are quoted below:

European

| | |
|---|---|
| Grand Extra Classical Piedmont | 3.85-3.90 |
| Extra Classical Italian 12/14 12/16 | 3.70-3.75 |
| Best Classical Italian 13/15 24/26 | 3.50-3.55 |
| Classical Italian | 3.45-3.50 |

60 days' basis

Japan

| | |
|---|---|
| Filature Kansai Double Extra Cracks | 3.65-3.67½ |
| Filature Kansai Extra 13/15 | 3.45-3.50 |
| Filature Shinshu Extra 13/15 | 3.40-3.45 |
| Filature Kansai Best No. 1 | 3.35-3.37½ |
| Filature Kansai No. 1 13/15 | 3.25-3.30 |
| Filature Shinshu No. 1 13/15 | 3.30-3.32½ |
| Rereels No. 1 13/16 | Nominal |
| Rereels No.. 1 1/2 13/16 | Nominal |
| Rereels No. 1 1/2-2 | Nominal |

6 months' basis

China

| | |
|---|---|
| Canton XXA Crack 14/16 | 2.85-2.90 |
| Canton XXB 14/16 ordinary | 2.70-2.75 |
| Tsatlee Blue Dragon and Flying Horse | 2.65-2.70 |
| Tsatlee Kun Kee Mars No. 1 | 2.40-2.45 |
| Tussah Filature Eight Cocoon No. 1-2 | 1.02½ |

6 months' basis

SPUN SILK

There is no change in the activity of this industry, although spinners are looking forward to a good demand for their product in the near future. There has been quite a good call among the manufacturers for samples, which would indicate that a good business will follow. As will be noted, there has been a drop in the price of spun silk of twenty cents per pound on all counts, although this recession in price has not yet affected the volume of business done. Prices are quoted below:

| | |
|---|---|
| 60/2 | 3.60 |
| 50/2 | 3.50 |
| 40/2 | 3.40 |
| 30/2 | 3.25 |
| 20/2 | 3.15 |
| 10/2 | 3.05 |

ARTIFICIAL SILK

A little higher price is quoted for this product, and we are informed that after July 1st a still higher price will go into effect. The braid manufacturers are not yet buying artificial silk, but it is thought by the importers that this industry will be active buyers in the market later on. All quotations available are given below:

| | |
|---|---|
| 150 Deniers English A.,—Bleached | $2.00 |
| 150 Deniers English B.,—Bleached | 1.88 |
| 150 Deniers English C.,—Bleached | 1.75 |

SPUN SILK
YARNS FOR ALL PURPOSES
AMERICAN SILK SPINNING CO., PROVIDENCE, R.I.

MINDLIN & ROSENMAN
Importers and Manufacturers of
RAW and THROWN SILK, ARTIFICIAL SILK
Mercerized and Cotton Yarns, Yarns and Threads
105-107 East 29th St., near 4th Ave., New York
Our Specialty:
DYED SILK FOR THE KNITTING TRADE
on cones and tubes
Factory and Dyehouse, Brooklyn, N. Y.

WILLIAM RYLE & CO.,
FOREIGN AND DOMESTIC
SPUN SILK YARNS and NOILS
Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.
225 Fourth Ave., Corner 18th St., NEW YORK CITY

## SILK.

### New Mills.

New Jersey, Paterson. A commission warping and winding plant is being started in the Barnert Mill, 62 Railroad Ave., by Max Lessman, Abraham Appet and Samuel Appet.

New Jersey, Paterson. A certificate for the incorporation of the Hallawell Warping & Winding Company has been filed with authorized capital stock of $5,000. The incorporators are Thorp Hallawell, George J. Standaert, and Marie Sisco. The principal place of business will be at 94 Fulton St. Mr. Hallawell is the agent.

New Jersey, Paterson. A new six-loom broad silk plant has been started at 93 River St. by H. Schneider.

New Jersey, West Hoboken. Forsthoff-Dressler is the name of a new 4-ribbon loom plant started in the Hasco Mill No. 2, on Franklin St.

*Pennsylvania, Dorrancetown. The new branch plant to be established on Eley St. by the Duplan Silk Company will be a throwing plant and no looms will be intsalled. Plans have been made for a building to contain 200,000 square feet of floor space and construction work will be started during the present month. It will be as nearly fireproof as it is possible to make it and the most approved methods for the safety and comfort of operatives and efficiency in operation will be followed. The plant will probably be completed and equipped before the end of December. Details of the equipment have not been fully worked out but electricity is to be used for the motive power. Other plants are operated by the Duplan Silk Company at Hazleton, Pa., and West New York, N. J., on piece dyed broad silk goods. The New York office is at 50 Union Sq. J. L. Duplan is president; A. R. Salembier, treasurer, and E. Buhler, buyer. It is understood that the new plant will give employment to between 400 and 500 hands at the start and that eventually 1,000 to 1,500 hands will be employed.

### Enlargements and Improvements.

Canada, Ontario, Brantford. Plans have been prepared for a new dyehouse to be erected at the Niagara Silk Mills, Ltd. At the present time the silk is sent to Galt to be dyed and the erection of a new dyehouse will mean a saving of time in getting out orders. The Niagara Silk Mills, Ltd., is a branch of the Niagara Silk Mills of North Tonawanda, N. Y.

New Jersey, Paterson. The G. & R. Silk Company, located in the Pope Mill, are adding 40 new looms to their equipment. Mr. Goodfriend, the proprietor, recntly purchased the Newark Silk Company's plant at receivers' sale. The two plants will be run separately.

New Jersey, Paterson. The Atlantic Silk Company has moved from the Todd Mill to the Strange Mill, and will add some new looms.

New Jersey, Paterson. The Paterson Silk Company, located in the Atherton Mill, are about to add ten broad silk looms to their plant.


A. P. VILLA & BROS.

YOKOHAMA CANTON SHANGHAI — NEW YORK — MILAN TURIN LYONS

95 MADISON AVENUE

RAW, THROWN AND DYED SILKS

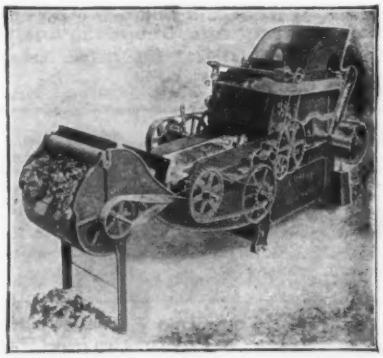
*Silk on Quills or Beams*

*Hosiery Silk on Cones*

Telephone 10080 Madison Sq.

Mills: Passaic, N. J.

The Latest "Dodge"



Rag or Shoddy Picker

With Improved Non-Clogging Condenser

MAKES fire-proof gauze room unnecessary, saves space, and reduces fire hazard. Picked stock always in sight, and easily removed. Equally efficient on fine or coarse work. Equipped with Imported Ball Bearings. "Bit" Attachment insures better and more uniform product. Send for details.

C. S. DODGE, LOWELL, MASS.

Pickers, Bagging Machines and Picker Pins. Cylinder Coverings a Specialty.

"IF DODGE DOES IT—IT SATISFIES"

MACUNGIE SILK COMPANY
Macungie, Pa.
Bindings and Ribbons
For binding Cotton and Woolen Bed Blankets, Go-cart Covers, Kimonas, Bath Robes, etc.
*Special Colors or Shades made to order*

LUDWIG LITTAUER

Tram, Thrown Silk, Organzine, Artificial Silk
Domestic and Imported, Plain, Gassed and Mercerized. Polished and Glazed Cotton, Mohair, Worsted and Tinsel.
Best Quality Harness Twine
107-109 Greene St., New York
Silk Throwing Mills, BEACON and YONKERS, N. Y.
YARNS

SILK MILL SUPPLIES
OF EVERY KIND AND DESCRIPTION
Also Power Transmission Supplies for General Mill Use
I. A. HALL & CO.
Paterson, N. J.
Allentown Reed, Harness and Mill Supply Co.
Allentown, Pa.

CASCAMI
CASCAMI SILK SPINNING CO. of AMERICA,
331 4th Ave., Madison Sq. 5197, New York City
SCHAPPE SPUN SILK
CORDONNETS AND NOILS

United States Conditioning & Testing Company
Cotton, Wool and Silk Conditioning
Fabric Testing and Chemical Analyses
Offices and Laboratories, 340-44 Hudson St., (cor. Charlton St.)
NEW YORK
D. E. Douty, Mgr. F. G. Boye, Supt. K. B. Lamb, Chem. Eng.

The Bradley Stencil Machine
Makes stencils in half a minute, at reduced cost of 1-10 cent each. Write for catalogue and price list.

In universal use by thousands of manufacturers and shippers.
Also manufacturers of Oil Stencil Board. Write for prices and samples.
101 Beekman St. New York, U.S.A.

You Save Enough Insurance to Pay for the Equipment
So it costs you NOTHING to have the AMERICAN WATCHMAN'S CLOCK. Fully approved by all insurance companies. We equip factories with Fire Alarms, Signals, etc., also Employee's Time Recorders, and Telephone Systems. Electric Time System consists of Master Regulator in office with secondary electric clocks throughout the mill, insuring accurate time. Send for particulars.
Pettes & Randall Co., 150 Nassau St., New York

Lowell Crayons
Meet the requirements of any cotton, woolen or worsted mill.
*May we send samples? 15 colors and white*
LOWELL CRAYON CO. Original Manufacturers LOWELL, MASS.
TRADE MARK ON EVERY BOX

## SILK.

.....

New Jersey, Paterson. Surasky Bros., 9 Taylor St., manufacturers of broad silks, have leased space in the Neuviller Mill, 60 Garfield Ave., and will move there and add more looms. Their equipment will then consist of 40 looms.

*New Jersey, Paterson. Simon, Breen, Magennis Company, manufacturers of silk ribbons on 45 looms, suffered loss of about $30,000 in the recent fire in the Todd Mill. They will resume manufacturing in the Hall Mill, Harrison and Summer Sts., Paterson.

New Jersey, Paterson. The Seacaucus Silk Company, manufacturers of broad silks, are moving from River and Bridge Sts., to the Barnert Mill. Ten more looms will be added, making 35 in all.

New Jersey, Paterson. Barnet Cohen, 15 No. 2nd St., is adding ten new looms to his equipment. Broad silks are manufactured.

New Jersey, Paterson. L. Friedman, a commission warper and winder, will move this week from 93 River St. to the corner of River and Bridge Sts., and will add a few more machines.

New Jersey, Paterson. The Acme Silk Mfg. Company, who were recently burned out in the Hamil Mill, have located at 15 N. 2nd St., where they have installed ten broad silk looms and will add more later.

New Jersey, Philipsburg. Reynolds & Tirrell, manufacturers of broad silks on 20 looms, have purchased a nine-acre farm on Warren St. and contemplate the erection of a new brick mill, 90 by 130 feet.

Pennsylvania, Allentown. The State Silk Co., So. Hall and Maple Sts., manufacturers of broad silks, on 30 looms, are planning to enlarge. Charles Sapperstein is manager.

Pennsylvania, York. The installation of the new electric power plant at the Diamond Mill of the York Mfg. Company, which was started last year, will be completed in the near future. Generating machinery will be installed which will be used for the operation of both the Diamond and the York Mills of this company. They are now operated by steam power plants. The Monarch Mill is working overtime at present.

*Pennsylvania, York. The building on West Princess St. purchased by the Franklin Silk Mills from the Ashley & Bailey Company has been entirely renovated and machinery is being moved into the mill from the Franklin Silk Mills building at Dewey and West Poplar Sts. When the new quarters are entirely equipped they will contain altogether about 300 looms and auxiliary machinery, making a well equipped and modern plant. B. Edmund David, 440 4th Ave., N. Y., is proprietor and buyer. Plants are also operated at Paterson, N. J. and Reading, Pa.

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### Mills Starting Up.

New Jersey, Paterson. The Commercial Silk Company have purchased the plant of the Fox Silk Company, 130 Broadway, and will at once start up the 12 broad silk looms on plain goods.

### SILK MILL NEWS

New Jersey, Paterson. Samuel Goodfriend, who recently purchased the plant of the Newark Silk Company in the Sowerbutt Mill, has organized a new corporation under the style of the Newark Silk Company, Inc., with capital stock of $25,000 to continue the business. Mr. Goodfriend is also proprietor of the G. & R. Silk Company, located in the Pope Mill. Forty new looms are being added by the latter concern as noted in another part of this issue.

Pennsylvania, Hazleton. The Duplan Silk Company, operating one of the largest silk manufacturing plants on piece dyed silks and silk mixed goods, have recently contracted with a Philadelphia architect to prepare plans for a one-story and basement brick, concrete and steel building with saw tooth roof, 90 by 180 feet. Estimates will be asked within a few days on the operation. As noted in previous reports a new branch throwing plant containing about 200,000 square feet of floor space, is to be established at Dorrancetown, Pa., and according to plans, will be completed and equipped before the end of December. E. Buhler is buyer.

Pennsylvania, Trevorton. J. H. & C. K. Eagle, of Shamokin, have purchased the mill occupied by their branch at Trevorton from the Industrial Stock Company of Trevorton and the plant is to be greatly enlarged, according to report. Broad silks are manufactured on present equipment of 200 broad looms operated by electric power.

### MISCELLANEOUS.

Pennsylvania, Hazleton. Plans are being made by the Hazleton Bleach Works, A. J. Kummerer & Son, proprietors, for a brick and concrete addition, 50 by 100 feet. Boilers, engine, an electric generator, bleaching apparatus, a sprinkler system, and a freight elevator, are to be installed. They are bleachers of knit goods in the piece and cotton yarns in skeins. H. J. Kummerer is the buyer.

Pennsylvania, Philadelphia. Arrangements have been made for the erection of a four-story and basement concrete addition to the plant of Oehrle Bros. & Co., 425 N. Third St., manufacturers of upholstery trimmings, their plant being one of the largest in this vicinity in this line. The new building will be 40 by 75 feet. Work will be started at once.

Rhode Island, Westerly. George C. Moore Company, manufacturers of elastic webs, are having plans drawn for an addition to be built on land recently purchased by Mr. Moore. 150 people are employed at the plant at present.

*Tennessee, Chattanooga. The addition being built at the plant of the Standard Processing Company will be 2 stories high, 60 by 176 feet. The new space is to be used for increased winding and gassing and equipment will be installed before June. They are converters of mercerized and bleached yarns, 26/2 to 80/2, also single yarns. The Philadelphia office is at 720 Lafayette Bldg.


## RATS AND CONTRACTS (ANNOUNCEMENT)

72 Front Street, New York, February 1, 1915.

*To Mill Owners and Superintendents:*

The VIRUS LIMITED INC. of 72 Front Street, New York, wish to announce that they have taken over the business formerly conducted by the DANYSZ VIRUS LIMITED, of the same address and that they are now prepared to accept yearly contracts for the extermination of rats and mice and that in connection with all such contracts the wonderful bacteriological preparation, DANYSZ VIRUS, discovered and prepared by Dr. Jean Danysz of the Pastuer Institute of Paris will be used exclusively. This company also manufactures a roach exterminator of the greatest merit and we will be glad to send a sample of same to those interested in giving same a trial. Write for full information.

Yours truly,

Department 4 VIRUS LIMITED INC.

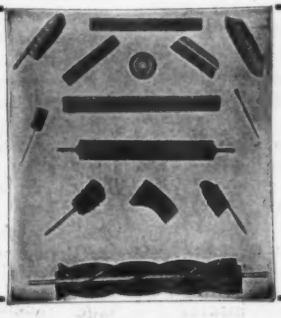
We Make and Repair

**Brushes**

For Every Known

**Fabric**

The Name MASON Guarantees



**Mason Brush Works**

Worcester, Mass.

Agt. and Mgr.
CHAS. A. O'NEIL

FIRE, LIGHTNING, WINDSTORM.

The HOME INSURANCE COMPANY NEW YORK

Elbridge G. Snow, President

Organized 1853 MAIN OFFICES, 56 CEDAR ST.

Cash Capital, $6,000,000

ASSETS, January 1, 1915 ..... $35,313,539.27
LIABILITIES (Except Capital) ..... 16,610,065.11
SURPLUS AS REGARDS POLICY HOLDERS... 18,703,474.16

Losses Paid Since Organization over ..... 156,000,000.00

INDEMNITY
For Loss of
Profits
Commissions
Use and
Occupancy
on acceptable
Protected Plants
at the
Minimum Rate

IS prepared to entertain liberal lines on Sprinkler-Equipped and Modern Improved risks generally, having a special department for the consideration of such business.

OWNERS OR TENANTS may have for the asking proper advices in relation to the FIRE HAZARD and the Value of Automatic Sprinkler and other protection for the manufacturing or distributing plant. Correspondence invited by the

DEPARTMENT OF IMPROVED RISKS
56 CEDAR STREET, N. Y.

## DYESTUFFS AND CHEMICALS

The unsettled conditions in the dyestuff and chemical trades caused by the European situation make it impossible to get quotations which would be of any value to our readers. The dyestuff and chemical list of quotations will therefore be omitted until this trade is again on a normal basis.

## FIRES.

Louisiana, New Orleans. The plant of the Kohlman-Moss & Cotton Felt Mfg. Company has been destroyed by fire with loss of about $13,000. The insurance will be about half that amount.

Massachusetts, Cordaville. A spark in a picker at the Cordaville Woolen Company started a fire which was extinguished by the employes with slight damage. The mill is running as usual.

Massachusetts, Lowell. A fire in the plant of the Hamilton Mfg. Company was confined to a coal chute where it started and the damage is small.

Massachusetts, Holyoke. A fire in the storage department of No. 3 Mill of William Skinner & Sons, caused damage estimated at about $5,000, largely by water from the automatic sprinkler system.

New Jersey, Hoboken. The silk ribbon mill of Beck Bros., Inc., at the corner of Ferry and Bloomfield Sts., has been gutted by fire with loss of about $5,000, partly covered by insurance. Thirty-one looms were operated.

New Jersey, Paterson. Five firemen were hurt and damage estimated at $50,000 was caused by fire of unknown origin which started on the second floor of the old Todd Mill on Van Houten St. Robt. Muller & Co., manufacturers of hat bands on 40 looms, occupied part of the first and second floors. Other occupants of the building are Joseph Wolf, a manufacturer of broad silks on 33 looms on the second floor, the Belmont Silk Co., manufacturers of satins and taffetas with 56 looms on the third floor, Simon, Breen, Magennis Co., manufacturers of silk ribbons with 45 looms on the top floor, and the Textile Finishing Company, which conducted a business of finishing, embossing and moireing ribbons on the ground floor.

New Jersey, Paterson. A fire in the plant of the Madison Silk Company caused slight loss on stock and buildings. They manufacture broad silks at Broadway and Madison Ave.

New Jersey, Rochelle Park. The dye house of the Rochelle Park Velvet Company, Gustave A. Klinge, proprietor, has been destroyed by fire of unknown origin with loss estimated at $10,000. A business of dyeing and finishing velvets and similar goods is carried on.

New York, Brooklyn. A fire in the building at 240 Broadway damaged the plants of the Halperin Knitting Mills, manufacturers of fancy knit goods and knitted neckwear, and the Kaiser Knitting Mills, Inc., manufacturers of sweaters and sweater coats. The loss is covered by insurance.

VICTOR MILL STARCH

THE WEAVER'S FRIEND

IT BOILS THIN. PENETRATES THE WARPS. INCREASES BREAKING STRENGTH. THE STANDARD SIZING AND FINISHING STARCH FOR TWELVE YEARS. A TRIAL WILL CONVINCE YOU.

THE KEEVER STARCH CO.

COLUMBUS - - OHIO

EASTERN AGENT - - - D. H. WALLACE, 8 BEACON STREET, BOSTON, MASS.
SOUTHERN AGENT - - JAMES H. MAXWELL, GREENVILLE, S. C.

## FIRES.

New York, Brooklyn. The Grand Knitting Mills, Galinsky & Galinsky, proprietors, 729 Metropolitan Ave., have been burned out with loss of about $6,000. Sweater coats were manufactured on 40 knitting and 15 sewing machines. The loss is fully covered by insurance.

North Carolina, Kinston. A cotton warehouse owned by the Kinston Cotton Mills has been damaged by fire with loss of about $7,500. Fully covered by insurance.

Pennsylvania, Philadelphia. It is reported that a fire considerably damaged the plant of J. H. Wallace & Bro., manufacturers of woolen waste, etc., at 1620 Lombard St. The damaged portion of the plant is being repaired and business conducted as usual.

Pennsylvania, Reading. A fire is reported as having recently destroyed the plant of the Royal Hosiery Company, 141 Cedar St., where they manufactured seamless hosiery on 70 knitters, 8 ribbers and 15 loopers, the production being sold direct. The loss is estimated at $30,000.

Rhode Island, Central Falls. The plant of the Blackstone Stocking Company was again threatened by a fire which started in the picker room and caused considerable loss by water. The blaze was extinguished by the water sprinkler system. The loss is covered by insurance.

Tennessee, Nashville. A fire in the plant of the May Hosiery Mills, of unknown origin, caused damage estimated at about $1,000, fully covered by insurance.

## MISCELLANEOUS.

*New York, Farmingdale. The new silk dye works to be located here headed by R. A. Weber, of St. James, will be incorporated under the name of the Independent Silk Dyeing Company, Inc., and the capital stock will be $50,000. A business of skein silk dyeing in all of its branches will be carried on. Mr. Weber has purchased several acres of land and construction work will be started on a building about May 1. It is expected the plant will be equipped and ready for operation about September 1. Employment will be given to about 40 men.

Pennsylvania, Philadelphia. Local builders are estimating on plans for a new building at Janney and Ontario Sts. for Boger & Crawford, manufacturers of mercerized yarns. The new building, which will be used as an addition, will consist of two stories of brick, concrete and timber, 40 by 112 feet, and will cost in the neighborhood of $7,000. They will install a considerable amount of new machinery for the purposes of converting yarns for various uses.

Pennsylvania, Philadelphia. The Susquehanna Hosiery Mills have equipped a plant at 2720 W. Susquehanna Ave., buying full fashioned hosiery in the grey and converting the goods into novelties. The plant contains 2 loopers and 2 seamers, operated by electric power. The goods are finished by them and sold direct.

# 42 Years of Service

*—the story of a small roof with a great record*

*Sherfey & Kidd Furniture Store, Brazil, Ind.*

*Roofer: Henry C. Smither Roofing & Sheet Metal Co. Indianapolis, Ind.*

*Sims & Smither, 42 years ago*

## Barrett Specification Roofs

The photograph above shows a building in Brazil, Indiana, which was roofed in 1872 with felt and gravel along the lines of *The Barrett Specification.*

A few months ago, it was necessary to add another story to the building and the old roof was torn off.

*During 42 years the roof never leaked, nor was it patched, painted or repaired.*

The owners wrote to the successors of Sims & Smither, who put on the original roof in 1872, saying: "*We want a roof like the old one*"—and a Barrett Specification Roof will, therefore, cover the new addition.

From the viewpoints of service and economy Barrett Specification Roofs are preeminently superior to any other kind.

Copies of The Barrett Specification free on request.

### *Special Notice*

We advise incorporating in plans the full wording of The Barrett Specification, in order to avoid any misunderstanding.

If any abbreviated form is desired, however, the following is suggested:

ROOFING — Shall be a Barrett Specification Roof laid as directed in printed Specification, revised August 15, 1911, using the materials specified and subject to the inspection requirement.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati Pittsburgh
Detroit Birmingham Kansas City Minneapolis Salt Lake City Seattle

THE PATERSON MFG. CO., Limited: Montreal Toronto Winnipeg Vancouver
St. John, N.B. Halifax, N.S. Sydney, N.S.

TRADE B MARK

## MILL STOCKS

### FALL RIVER MILLS

| | Bid. | Asked. |
|---|---|---|
| American Linen | 50 | ... |
| Arkwright Mfg. Co. | ... | 60 |
| Barnaby Mfg. Co. | ... | 40 |
| Barnard Mfg. Co. | ... | 50 |
| Border City Mfg. Co. | 105 | 107½ |
| Bourne Mills | ... | 105 |
| Chace Mills | 100 | 105 |
| Charlton Mills | ... | 90 |
| Coanicut Mills | ... | 95 |
| Cornell Mills | 145 | ... |
| Davis Mills | ... | ... |
| Davol Mills | 90 | ... |
| Flint Mills | 99½ | ... |
| Granite Mills | 75 | ... |
| Hargraves Mills | 42½ | ... |
| King Philip Mills | 106 | ... |
| Laurel Lake Mfg. Co. | 95 | 100 |
| Lincoln Mfg. Co. | 71 | 75 |
| Luther Mfg. Co. | 118 | ... |
| Merchants' Mfg. Co. | 79 | ... |
| Mechanics Mills | 72½ | 77½ |
| Naragansett Mills | 87½ | ... |
| Osborn Mills | ... | 98½ |
| Parker Mills | 45 | ... |
| Pilgrim Mill, pfd., | 93 | ... |
| Pocasset Mfg. Co. | 80 | 90 |
| R. Borden Mfg. Co. | 130 | ... |
| Sagamore Mfg. Co. | 176 | ... |
| Seaconnet Mills | ... | 58 |
| Shove Mills | 73½ | ... |
| Stafford Mills | 67½ | ... |
| Stevens Mfg. Co. | 125 | ... |
| Tecumseh Mills | 105 | ... |
| Troy C. & W. Mfg. Co. | ... | ... |
| Union Cotton Mills | 170 | 180 |
| Wampanoag Mills | ... | 70 |
| Weetamoe Mills | ... | 80 |

### NEW BEDFORD MILLS

| | Bid. | Asked. |
|---|---|---|
| Acushnet Mill | 155 | ... |
| Beacon Mfg. Co., com., | 102 | ... |
| Beacon Mfg. Co., pfd., | 112½ | ... |
| Booth Mfg. Co., com., | 25 | ... |
| Booth Mfg. Co., pfd., | 65 | ... |
| Bristol Mfg. Co. | 61 | ... |
| Butler Mill, com., | ... | 75 |
| Butler Mill, pfd., | ... | 100 |
| City Mfg. Co. | ... | 86 |
| Dartmouth Mfg. Co., com., | 170 | ... |
| Dartmouth Mfg. Co., pfd., | 100 | ... |
| Gosnold Mills, pfd., | 89 | ... |
| Grinnell Mfg. Co. | 172½ | ... |
| Holmes Mfg. Co., com, | 122½ | ... |
| Holmes Mfg. Co., pfd., | 110 | ... |
| Hathaway Mfg. Co. | 150 | ... |
| Kilburn Mills | 120 | ... |
| Mahomet Mills | 120 | 125 |
| Nashawena Mills | 80 | 85 |
| Neild Mfg. Co. | ... | 115 |
| N. E. Cotton Mills Corp., com., | 100 | ... |
| N. B. Cotton Mills Corp., pfd., | 90 | ... |
| Nonquitt Spinning Co. | 80 | ... |
| Page Mfg. Co. | 75 | ... |
| Pierce Mfg. Co. | 295 | ... |
| Pierce Bros. | 100 | ... |
| Potomska Mills | 122 | ... |
| Quisset Mills, com., | ... | 122½ |
| Quisset Mills, pfd., | 108 | 110 |
| Sharp Mills, com., | 86 | ... |
| Sharp Mills, pfd., | ... | 104 |
| Soule Mills | 64 | ... |
| Taber Mills | ... | 102½ |
| Wamsutta Mills | 120 | ... |
| Whitman Mills | 123½ | ... |

### OTHER NEW ENGLAND MILLS

| | Par Value. | Last Sale. |
|---|---|---|
| Amoskeag Mfg. Co., com., N. H. | 100 | *63 |
| Amoskeag Mfg. Co., pfd., N. H. | 100 | *100 |
| Androscoggin Mills, Me. | 100 | 140¼ |
| Arlington Mills, Mass. | 100 | 75 |
| Appleton Co., Mass. | 100 | 172 |
| Bates Carpet Co., Me. | 100 | *220¼ |
| Bigelow-Hartford, pfd. | 100 | *103¾ |
| Boston Duck Co., Mass. | 100 | 1280 |
| Boston Mfg. Co., Mass. | 100 | 105¼ |
| Cabot Mfg. Co., Me. | 100 | 100 |
| Chicopee Mfg. Co., Mass. | 100 | 90 |
| Continental Mills, Me. | 100 | 75¼ |
| Dwight Mills, Me. | 100 | *1035 |
| Edwards Mfg. Co. | 100 | 99 |
| Essex Co., Mass. | 100 | 190¼ |
| Everett Mills, Mass. | 100 | 116¾ |
| Fisher Mfg. Co., Mass. | 100 | 125½ |
| Franklin Co., Me. | 100 | 201½ |
| Great Falls Mfg. Co., N. H. | 100 | *190 |
| Hamilton Woolen Co., Mass. | 100 | 95 |
| Hamilton Mfg. Co., Mass. | 100 | 77½ |
| Hill Mfg. Co., Me. | 100 | 90¼ |
| Jackson Co., Me. | 1000 | 890 |
| Lancaster Mills, Mass. | 100 | 66½ |
| Lawrence Mfg. Co., Mass. | 100 | 151¾ |
| Lockwood Co., Me. | 100 | 97 |
| Lowell Bleachery, Mass. | 100 | 126⅓ |
| Lowell Hosiery, Mass. | 100 | 40 |
| Lyman Mills, Mass. | 100 | 112¼ |
| Massachusetts Cotton Mills, Ga. | 100 | 97½ |
| Massachusetts Cotton Mills, Mass. | 100 | 115 |
| Merrimack Mfg. Co., Mass. | 100 | 23¼ |
| Middlesex Co., Mass. | 100 | 56 |
| Middlesex Co., Mass., pfd., | 100 | 75 |
| Monadnock Mills, N. H. | 100 | 1000 |
| Nashua Mfg. Co., N. H. | 500 | 711¼ |
| Naumkeag Steam Cot. Co., Mass. | 100 | 195¼ |
| Newmarket Mfg. Co., N. H. | 100 | 95¼ |
| Otis Mfg. Co., Mass. | 1000 | 1352½ |
| Pacific Mills, Mass. | 100 | 119 |
| Pepperell Mfg. Co., N. H. | 100 | 345 |
| Plymouth Cordage Co., Mass. | 100 | 217 |
| Salmon Falls Mfg. Co., N. H. | 300 | 225 |
| Shaw Stocking Co., Mass. | 100 | 75 |
| Suncook Mills, N. H. | 100 | 20 |
| Thorndyke Mfg. Co., Mass. | 1000 | 1305 |
| Tremont & Suffolk Mills, Mass. | 100 | 100¼ |
| Waltham Bleachery & Dye Works, Mass. | 100 | *100¼ |
| York Mfg. Co., Me. | 100 | 85 |

### SOUTHERN MILLS

| | Bid. | Asked. |
|---|---|---|
| American Spinning Co. | 155 | ..... |
| American Spinning Co., pfd., | 100 | ... |
| Arkwright Mills | ... | 100 |

| | | |
|---|---|---|
| Avondale | 120 | 126 |
| Arlington | 130 | 136 |
| Brookside | ... | ... |
| Cannon | 125 | ... |
| Carbarrus | 115 | ... |
| Chadwick-Hoskins | ... | ... |
| Chadwick-Hoskins, pfd., | ... | 100 |
| Clara | 100 | ... |
| Cliffside | 190 | ... |
| Columbus Mfg. Co. | 94 | 100 |
| Darlington | ... | 83½ |
| Erwin, pfd., | 100 | ... |
| Easley | ... | 175 |
| Florence | 125 | 126 |
| Gibson, com., | ... | 105 |
| Grendie | ... | 96 |
| Glenwood | ... | 150 |
| Glen Lowry, pfd., | ... | 76 |
| Highland Park | ... | 200 |
| Highland Park, pfd., | 151 | 200 |
| Hartsville | 175 | 195 |
| Hartsville, pfd., | ... | 100 |
| Henrietta Mills | ... | 125 |
| Kesler | 140 | 160 |
| Loray Mills, pfd., | ... | 86 |
| Modena | ... | 96 |
| Monarch, S. C. | 115 | ... |
| Newberry | 125 | ... |
| Norris Mills | ... | 121 |
| Ninety-Six | 130 | 140 |
| Orr | ... | 86 |
| Ozark | 100 | 110 |
| Pacolet Mfg. Co., pfd., | 100 | ... |
| Patterson | 130 | ... |
| Piedmont Mfg. Co. | 150 | 167 |
| Pell City, Ala. | ... | 80 |
| Poe, W. F., Mfg. Co. | 100 | 103 |
| Salisbury | 150 | ... |
| Roanoke Mills | ... | 155 |
| Saxon | ... | ... |
| Spartan | 100 | ... |
| Toxaway | ... | 131 |
| Warren Mfg. Co., com., | 78 | ... |
| Warren Mfg. Co., pfd., | ... | 107 |
| Washington Mills | ... | ... |
| Washington Mills, pfd., | ... | 100 |
| Woodside Mills Co., com., | ... | 88½ |
| Woodside Mills Co., pfd., | ... | 80 |
| Woodside Mills Co., guar. | ... | 101 |
| Watts | ... | 85 |
| Williamson | ... | 125 |
| Ware Shoals | 70 | ... |
| Whitney | 110 | 120 |
| Woodruff | ... | 107 |
| Young Hartsell | 90 | ... |
| **CANADIAN MILLS** | | |
| C. Cottons | 28 | ... |
| C. Cottons, pfd., | 74 | 76 |
| Dominion Textile | 74¼ | 75 |
| Dom. Textile, pfd., | ... | 101 |
| M. Cottons | 51 | 51½ |
| M. Cottons, pfd., | ... | 99 |

*New Jersey, Paterson. Construction work is well under way on the foundation for the new plant at Dundee Lake for Crew's Silk Finishing & Piece Dye Works. The new plant will cost about $500,000 and will be the largest independent silk piece dye and finishing works in the country. Alfred Crew, the proprietor of the business, visited some of the large European centers about a year ago to learn of any improvements that might be incorporated into the new plant.

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BARCELONA (Spain)
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for cotton, wool, worsted, flax, hemp, jute, silk and other fibres
Cotton and Wool Knitting Machinery
Wood and Iron Works Machinery
Steam, Gas and Electric Power Engines
Industrial Tools and Appliances Fancy Articles

## WOOLEN MILL NEWS

Pennsylvania, Philadelphia. The Louis Walther Manufacturing Company. Indiana Ave. and A Sts., manufacturers of dress goods and men's wear, are about to lease a portion of the Emsley Mills at Emerald and Adams Sts., in which they will install additional equipment to be run as an annex. It is also said that the company has under consideration the matter of erecting a new mill, having recently purchased land for that purpose.

*Rhode Island, Washington. Seventy looms have been started up in the new weave shed of the Livingston Mfg. Company, and 30 more looms will be installed, bringing the total equipment up to 100 looms, which will be started up within the next few weeks. The new mill is of brick construction, 200 by 65 feet, and gives an increase of twenty-five per cent. over the old production. A change also has been made from steam to electric power.

Rhode Island, Woonsocket. A 1-story brick addition is being built to the plant of the Montrose Worsted Company, manufacturers of men's woolen and worsted wear on 80 looms. Plans were drawn by Walter F. Fontaine, architect, and the construction work is being done by Aubin Bros.

Rhode Island, Woonsocket. Equipment for a machine shop is being installed in the Falls Yarn Mills, manufacturers of woolen and merino, cotton and silk noil yarns. The plant is again running day and night and enough orders are ahead to operate on that schedule for some time.

*Texas, Houston Heights. There will be no increase in the output of the Oriental Textile Mills as a result of the improvements to be made. The changes are largely in the nature of repairs. Camel's hair press cloths and worsted yarns are manufactured.

Vermont, Springfield. A 2-story addition, 350 by 55 feet, of brick and cement construction, is being erected for the John T. Slack Corporation, manufacturers of wool shoddies, extracts and flocks. The new space will be used for the picker department and the assorting department and it is expected will be in use by the end of July.

.....

New York, Otto. McMahon & Hickey, Ellicottville, N. Y., owners of the old Otto Woolen Mills at Otto, N. Y., will remodel the factory, install some new equipment, and start up the plant in the fall. The mill has equipment of 2 sets of cards and 20 looms.

.....

**Mills Shutting Down.**

New York, Rifton. The plant of J. W. Dimick Co., manufacturers of velvet and Wilton rugs and worsted yarns has been shut down. Early in the year representatives of James Sloane's Sons, N. Y. City, inspected the plant and there were rumors that the Sloane concern would take over the business.

Pennsylvania, Indiana. The Indiana Woolen Mills Company has shut down its plant and the concern may possibly be reorganized. Blankets and knitting yarns were manufactured on 2 sets and 14 broad looms.


**Interruption of Production**

is recognized by textile mill operators as the most costly element of repairs.

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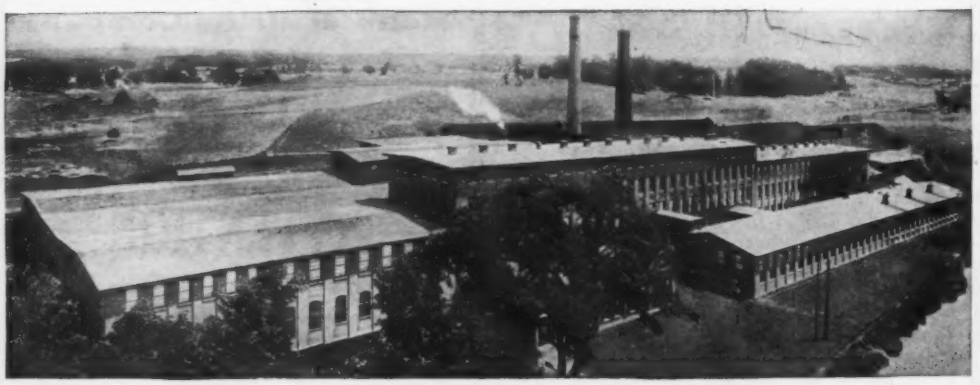

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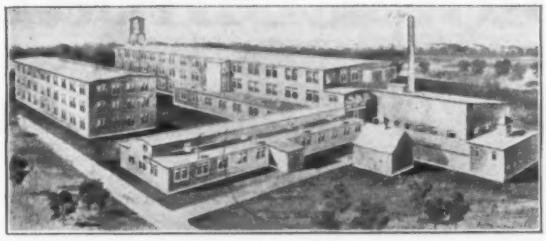

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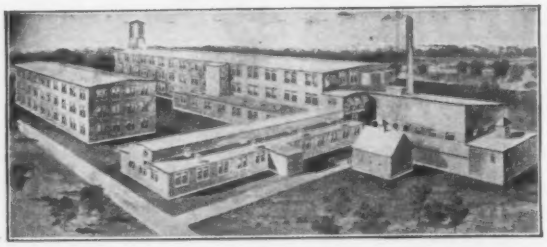

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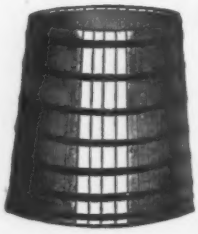

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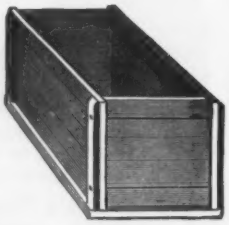

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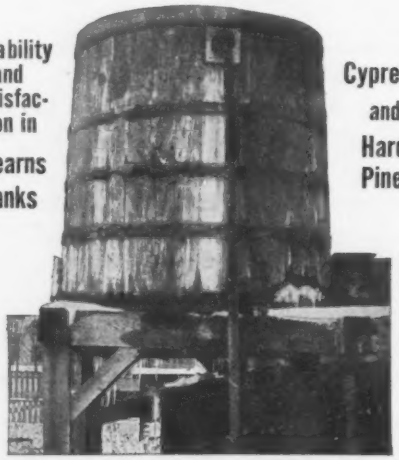

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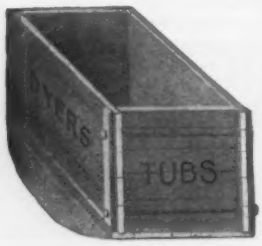


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*Dye Kettles and Tubs*

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Hungerford Filters having an aggregate capacity of over ONE HUNDRED MILLION GALLONS per day are now in operation in the textile mills of America

**The Filters That Never Require A Renewal of the Filter Bed**

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**Penna. Bldg., Philadelphia, Pa.**

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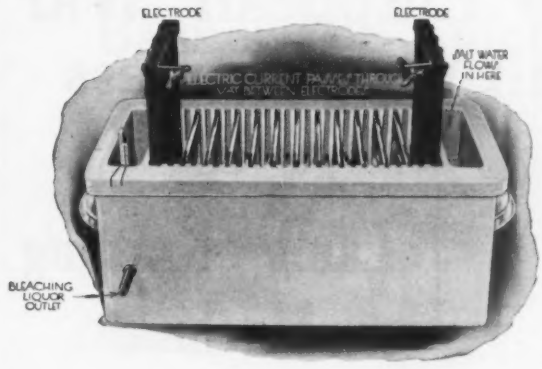


The cut represents our passage type Electrolyzer producing in 10 hrs. the equivalent of 50 lbs. of chloride of lime, operating under 110 or 220 DC, and nothing is used but salt-water and electricity.

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having many years ago passed the experimental stage. We have sold Electrolyzers to many of the large Knitting Mills, both hosiery and underwear, and so far are not aware of any purchaser not being thoroughly satisfied. There is absolutely no question about its merits.

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**International Reputation for Practical Instruction, Adequate Mechanical Equipment, Successful Graduates**

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Courses of Study include all branches of Textile Manufacture

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This school is located in New Bedford, Mass., an attractive residential city situated on Buzzards Bay, and the largest producer of fine cotton yarns and fancy woven fabrics in this country.

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***Every instructor is a man of special training and broad practical experience.***

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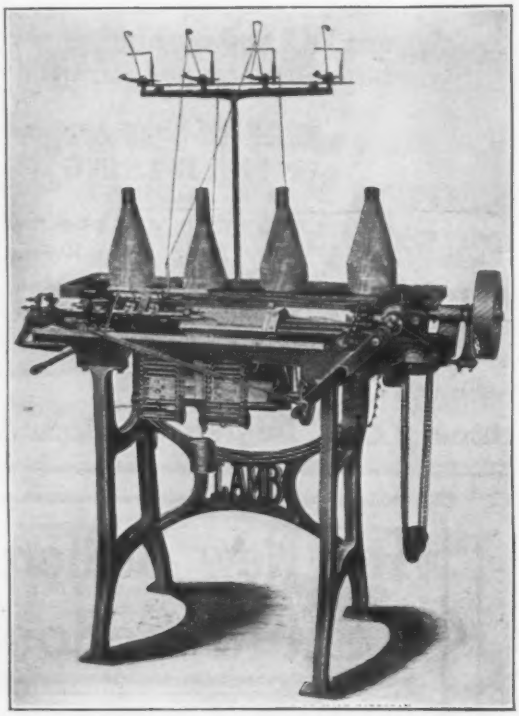


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## Lamb Knitting Machines

The American Machine
Originated in America in 1856

For the last sixty years the

**Lamb Knitting Machines Have Had the Habit of Making Good**

No matter where they are used or under what conditions. The fact is due to

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We are prepared to furnish the Knitting Mills of this continent with a superior product and at short notice.

We call your attention to a few of our new improved machines:

**Automatic Widener for Sleeves and Collars**
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Four colors—Automatic 3 needle rack
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# NEW MODEL

## Banner Full Automatic Hosiery Machine

### A FEW OF THE NEW FEATURES

Over
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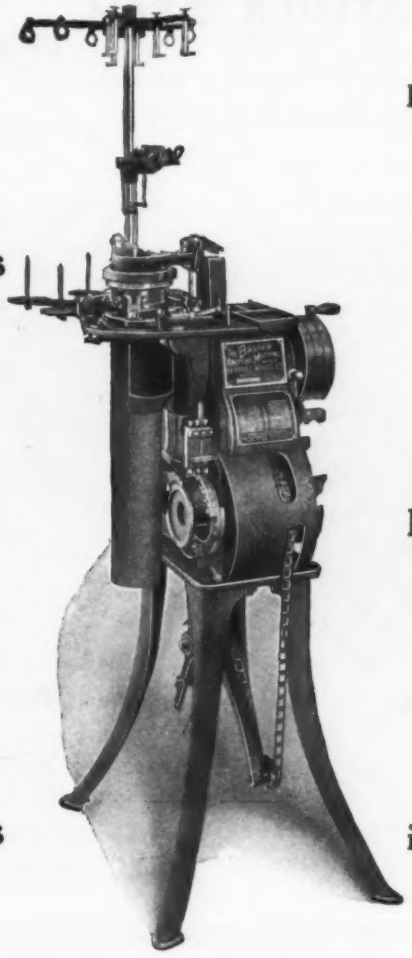
Banner
Machines
in
successful
operation

—

Average
production
100 machines
a week



*All* working parts accessible from *front* of machine

*Five* Yarn Changing Levers

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*New Yarn Engaging* Device

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THE FLATLOCK SEAM
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# Full Fashioned Hosiery Machines

—BUILT BY—

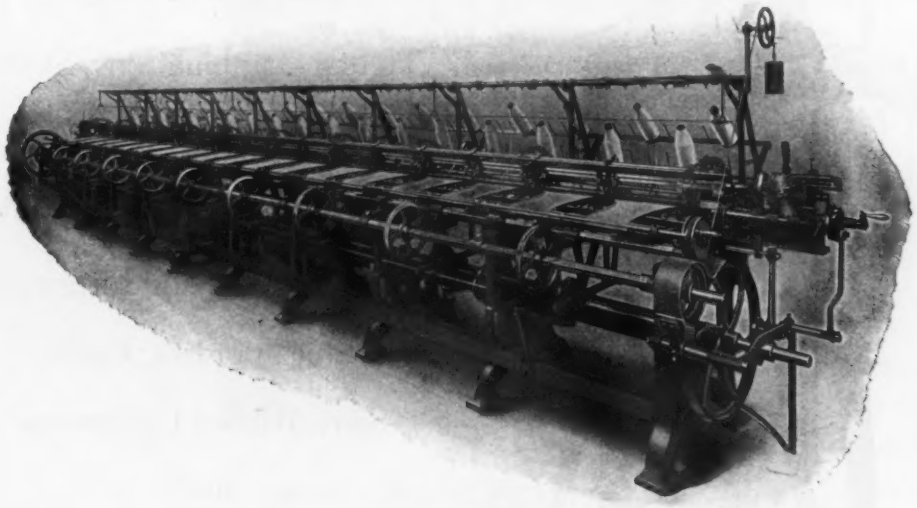
## Schubert & Salzer Maschinenfabrik

and their two Branch Works

**H. ALBAN LUDWIG and THEODOR LIEBERKNECHT**

**Chemnitz, Germany**

***Largest Manufacturers of all Classes of Hosiery Machines***



Schubert & Salzer, in addition to the plant of H. Alban Ludwig, have recently acquired the plant of Theodor Lieberknecht and continue to build Full Fashioned Hosiery Machines in each of the three plants, retaining the special features of each individual type and at the same time using on all three machines various patented devices and all the practical attachments known to the trade. These machines are built in all gauges from 14 to 34 needles to the inch and from 12 to 24 sections.

**Best Constructed, Most Economical and Productive Machines on the Market**

REFERENCES:

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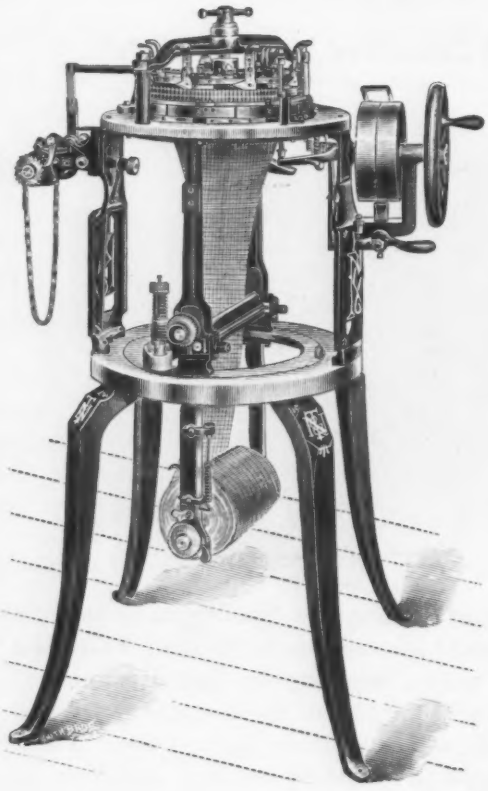
# Circular Rib Knitting Machinery



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Shirt-Borders, Cuffs

Swiss Ribbed Underwear

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Circular Ribbed Fabrics

of all Descriptions

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ESTABLISHED 1884

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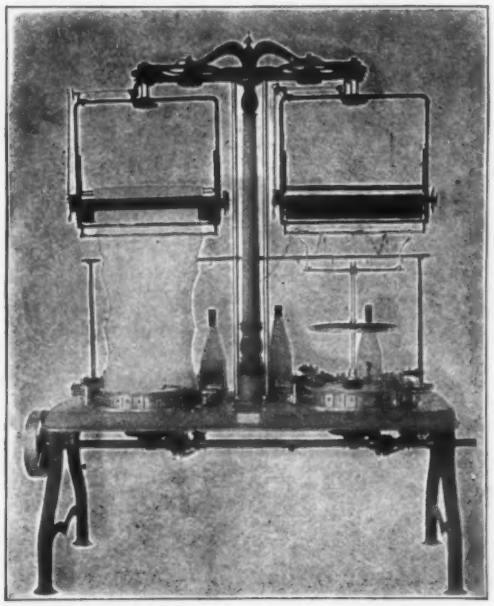
## Spring and Latch Needle Machines

**For Both Rib and Plain Work**
**Economically Producing a Great Variety of Fabrics**



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Improved Spring Needle Underwear Machine for Shirts, Drawers, Jersey Cloth, Astrachan and Stockinet.

Frames of any guage and diameter required can be furnished from 12 to 32 inches.

Patent removable hardened Wing Burr Wheels.

Patent Thread Stop Motion can be fitted to 20" and 32" frames and are specially adapted for making fine Jersey Cloth and Stockinet.

Our flat machine is adapted for knitting collarettes.

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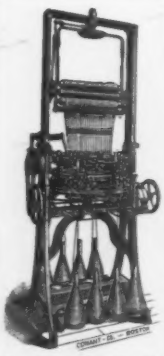
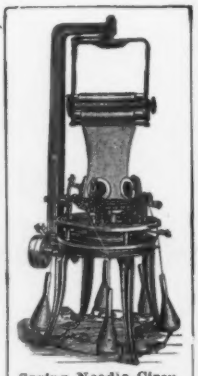
Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder.



Circular Spring Needle Rib Top Machine.



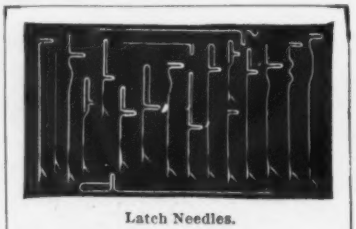
Spring Needle Circular Plain Body Machine.

## *Spring Needle Cylinder Rib-Top Machines*

For making Cuffs, Drawer Bottoms and Shirt Borders.

Spring Needles.

**Spring and Latch Knitting Needles, Burr Wheels, Burr Blades, Sinkers, Jacks, Etc.**



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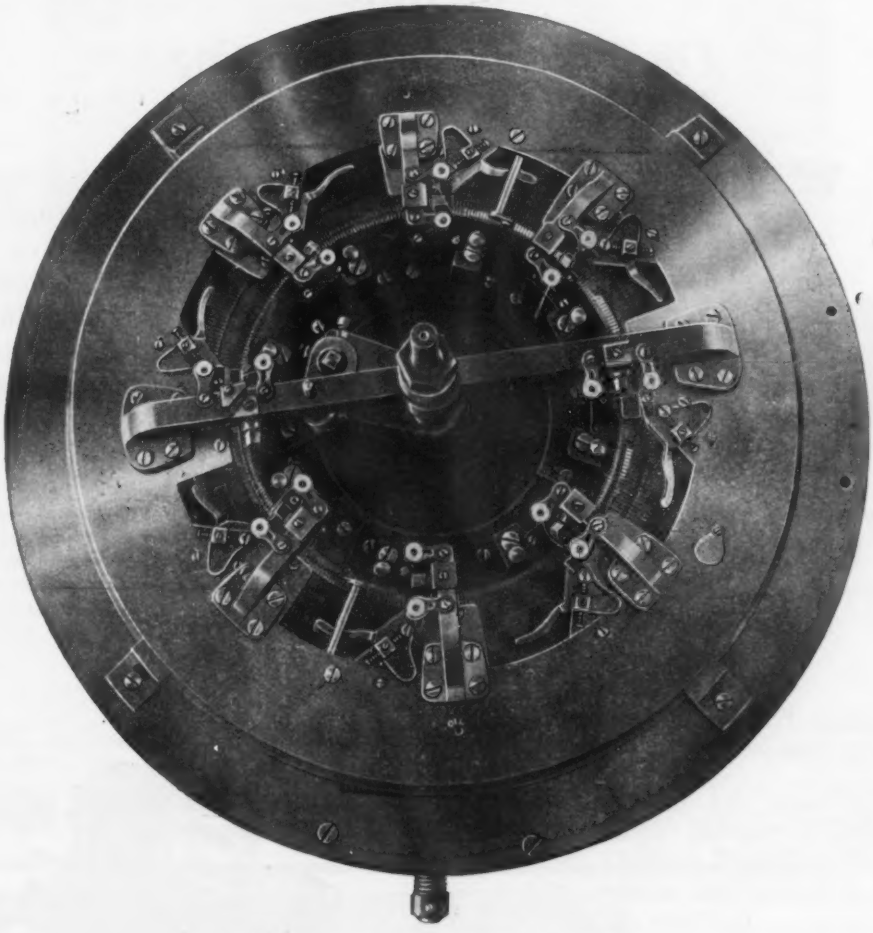
"IN A CLASS OF ITS OWN"

# The Leighton Ribbed Underwear Machine

TOP VIEW



## The Leighton is
## "BUILT RIGHT TO KNIT RIGHT"

AND THAT MEANS **Unequalled Knitting** | PRODUCING THE **Most Elastic, Soft Web**

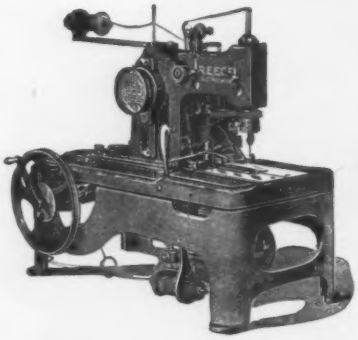
For Either WOOL or Cotton Plated with WOOL or Worsted

*Send for copy of our New Illustrated Catalog*

Leighton Machine Company, Manchester, N. H.

# The Reece Hand-Hole Button-Hole Machine

## *For Stitching and Cutting Button-Holes in Sweaters*

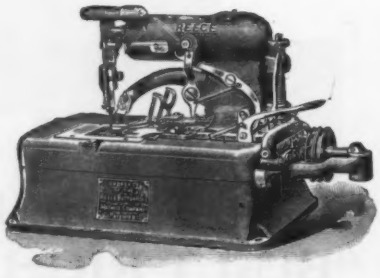


has twice the capacity of any other button-hole machine. It is simple, speedy, easily operated, and makes a perfect one or two cord button-hole that is stronger and better looking than a hand made one. The machine can be used on all sweater work, with or without canvas or other staying devices.

# The Reece Button-Hole Machine

## *For Cutting and Stitching Straight Double Barred Button-Holes in Knit Goods*

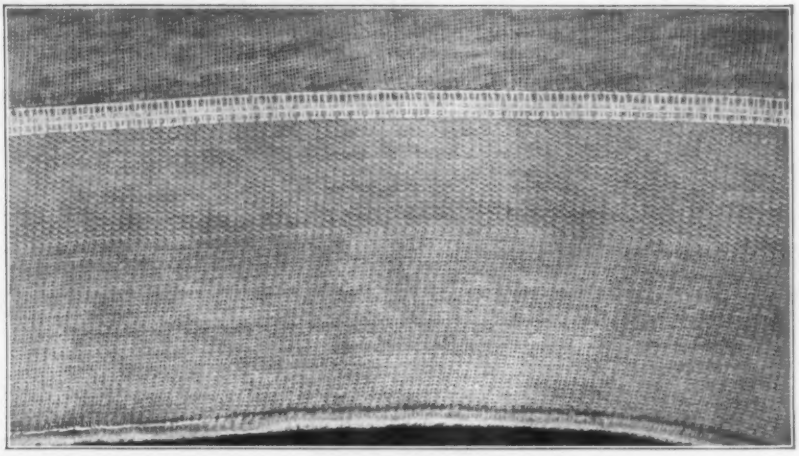
makes button-holes from 1/8 to 1 inch long. Being automatic, its capacity, even with unskilled labor, is double that of any other machine. The superior quality of the work is due to the elastic stitch — no cutting or pulling of the thread is necessary — when taken from the machine the button-hole is complete. Samples of work and terms on application.



# The Reece Button-Hole Machine Co.

**Office and Factory, 500 to 514 Harrison Ave., Boston, Mass.**

# ABSOLUTELY!



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Qualities which the eye cannot see — fine workmanship, fine adjustment of parts and fine balance — reveal themselves in the way the machine runs with scarcely no vibration.

UNION SPECIAL TANDEM INTERLOCK MACHINE

Highest form of refinement at every point. You will encounter many features which exceed your expectations — never one that falls below them.

to attach cuffs. Garments finished **completely** and **perfectly** in one continuous operation. Seam forms **perfect union of abutted edges** no heavier than single thickness of material. **No special thread** necessary to form the strong, desirable **Tandem Interlock Seam.**

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BOARDS FOR FAST BLACK DYERS.

HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

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## "Dubied" Flat Knitting Machines

For the sweater, etc. trade

BUILT BY

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AND

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"Cotton System"

BUILT BY

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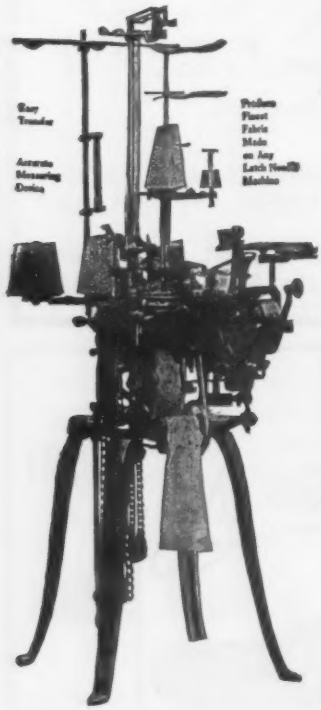
## BUSINESS AS USUAL

*Your inquiry will receive prompt attention*



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**"We are running this machine beside another popular knitter on silk and art silk plaited hosiery. On the 'P.&O.' machine we are making less menders, a more even fabric and bigger production. In fact it is the best machine we have in our mill."**

## *SAVES 10% ON YARN*

Makes Ladies' or Half Hose; garter top; no ravel, silk plaited or mercerized leg; high splice, double sole; advanced toe; linen or mercerized heel and toe.

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## "INVINCIBLE" and "JENCKES"

## Full Automatic Circular

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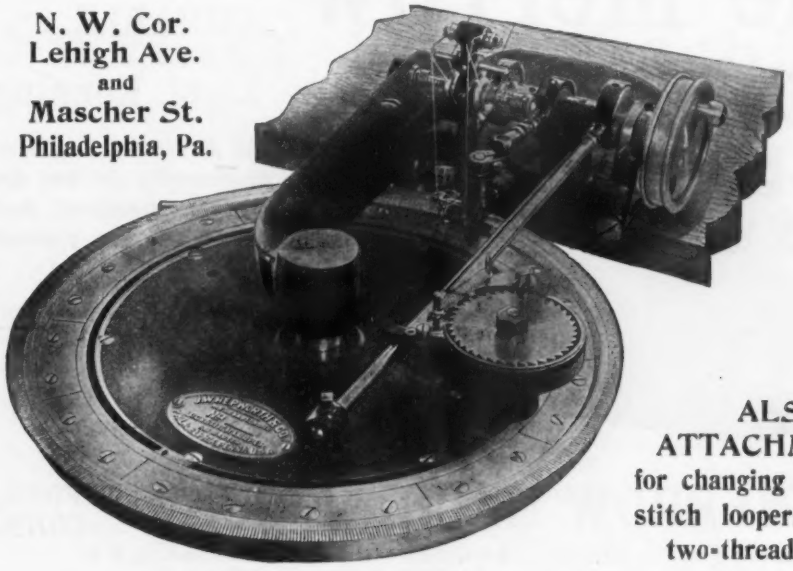

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Two
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ALSO
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**OUR MOTTO:**

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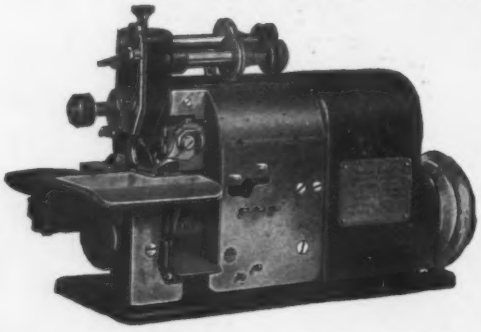
High Speed Overseaming, Overedging and Shell Stitch Machines are

FAST

DURABLE

Light Running



***OUR CLASS 60 MACHINES for Trimming and Overseaming in one Operation produce the strongest, best Seams and do it with the greatest economy.***

USE STYLE 18 for Horse Blankets.
STYLE 17 B or 22 for Bed Blankets.
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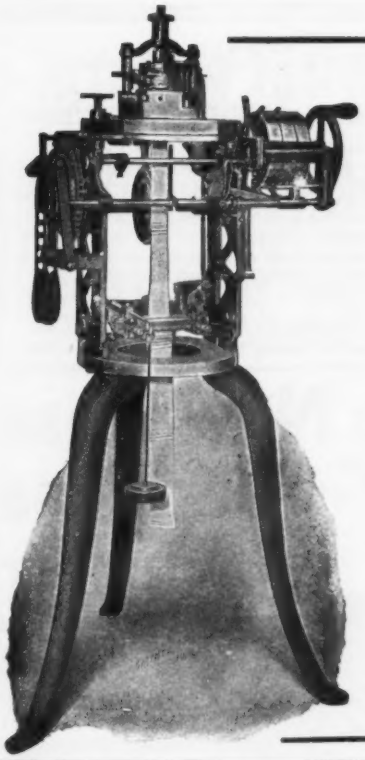

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BUILDERS OF

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of every kind for every purpose

**HOSIERY RIBBERS**

with Splicing, Striping, Two-speed, Selvage Welt and French Welt Attachments.

**Full Automatic Hosiery Footers**

**BODY MACHINES, SLEEVERS, etc.**

for Underwear, Sweaters, Toques, etc.

**NECKTIE MACHINES**

for making all kinds of tubular knitted scarfs.
Write for catalog, prices and samples.

## THE MOST COMPLETE LINE OF

# Sweater Coat Machines

Automatic Racking Machines with or without striping attachments.
Herring Bone Stitch Coat Machines.
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Plain Binding Machines.
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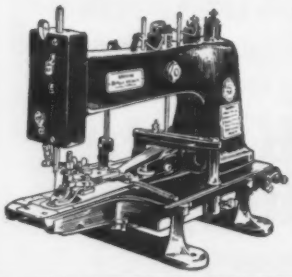
## Buttons Do Not Come Off If Sewed On By the Elastic Stitch Button Sewing Machine



**No Bobbins to Wind. Will Sew All Buttons With Any Thread.**
**No Threads to Trim. Saves 90% of the Needle Breakage.**

This machine is operated with but one thread, which enables it to run at higher speed than a two-thread machine, greatly reducing operation and maintenance expenses. It will sew on any size or style of two or four-hole buttons. Its patent thread-breaking device does away with the use of knives, and leaves the buttons neatly finished—no unsightly loose threads.

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## $10,000,000.00

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About $10,000,000.00 worth of full fashioned stockings are made in America each year.

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Because, the stockings you make will fit perfectly and bring you repeat orders.

The leading hosiery manufacturers are installing these machines.

If you are thinking of making full fashioned goods take up the question with us—as our success depends upon yours, we will prove to you that we can help you before you spend a cent.

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*Send for prices and particulars.*

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Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

**Manufacturers Like our Latch Needles**

because we make a superior grade of needles

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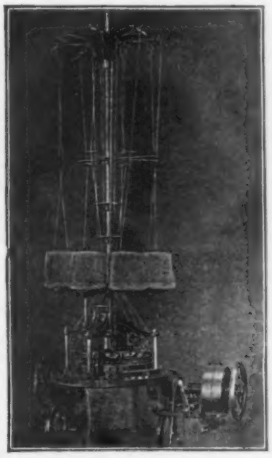

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**Circular Rib Knitting Machines**

*Twenty Years of Experience and Success*

Adapted for HEAVY SWEATER yarns as well as UNDERWEAR work

## Crawford Manufacturing Co.

**NEW BRUNSWICK, N. J.**

# LOWELL TEXTILE SCHOOL

Scientific and practical training in all processes of textile manufacture including all commercial fibres. Complete three year diploma courses in Cotton Manufacturing, Wool Manufacturing, Textile Designing, Chemistry and Dyeing, Textile Engineering,

Degrees of B. T. E. (Bachelor of Textile Engineering) and B. T. D. (Bachelor of Textile Dyeing) offered for completion of prescribed four year courses.

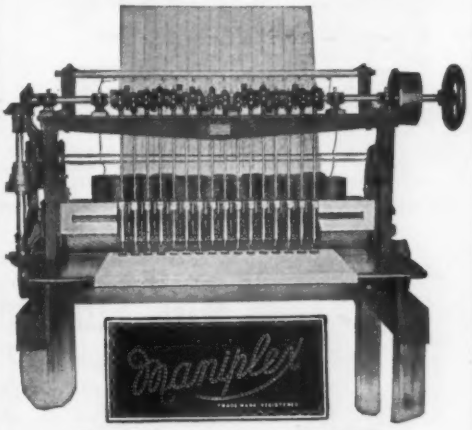
Certified graduates of High Schools and Academies admitted without examination.

**For Catalogue Address**

**CHAS. H. EAMES, S. B., Principal,**

**Lowell, Mass.**

# "Maniplex" Sewing Machines




## For Multiple Stitching

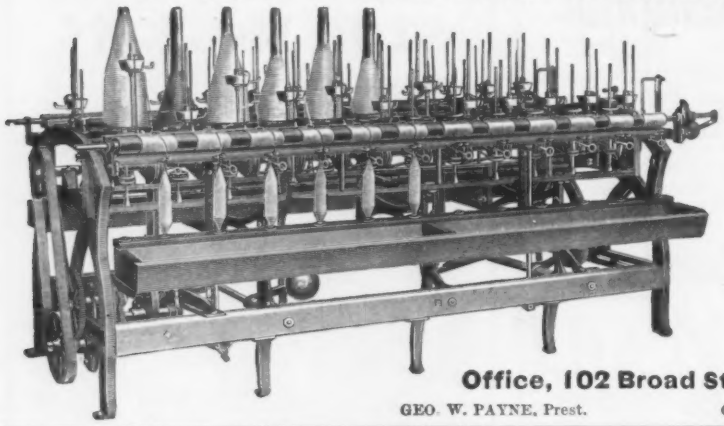
Built for all purposes where a number of rows of stitching are required. ¶ With either form of stitch, single thread chain, double thread chain, or lock stitch, sewing material from 1-16 inch thick, up to 1 inch thick, and up to 120 inch wide. ¶ Furnished with any desired number of needles, spacing to suit requirements. ¶ We also build **Paper Slitting Machines** and design special machinery.

## L. F. FALES

**Walpole, Mass., U. S. A.**

# OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers, Wind for Cop, Skein or Bobbin



Improved

## Upright Spoolers

**To Spool from Cop, Skein or Bobbin**

**Doubling Spoolers for doubling 2, 3 or more ends into one**

**Upright Quillers, Quill from Cop, Skein or Bobbin.**

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler Guides. Bolsters and Stops Made and Repaired at Short Notice.

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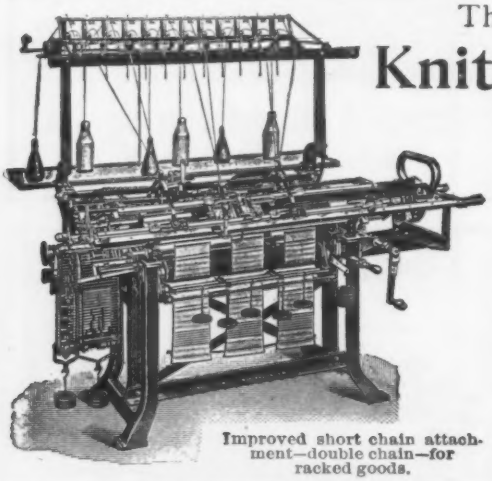
(Est. 1865, Inc. 1903.)

**Office, 102 Broad Street, Pawtucket, R. I.**

GEO. W. PAYNE, Prest. CLINTON F. PAYNE, Sec'y and Treas



Improved short chain attachment—double chain—for racked goods.

That is the Brand of the

## Knitting Machines

worldwide known to be **The Best**

**160,000 Knitting Machines in use all over the Universe**

## CLAES & FLENTJE

**Muhlhausen Thr., Germany**

*(Largest Knitting Machine Factory in the World)*

The cut represents one of our full automatic machines with double chain, short chain attachment, doing away with the long chain and lots of blocks.

Machines for all kinds of plain and fancy knit goods by hand and full automatic by power.

Our knitting machines are far superior to any other in simplicity and construction. They give a higher production than any other on the market.

For full particulars, needles and supplies for all kinds of knitting machines, write to

## Ainslie Knitting Machine Co.

**281 Ainslie Street** **Brooklyn, N. Y.**

## New Jersey Wire Stitcher

**Highest Grade**

Machine for rapid and Economical Method of Attaching Labels to Hosiery or other Garments.

Uses pointed staples, cannot tear the finest fabric.

*Send for Catalogue*

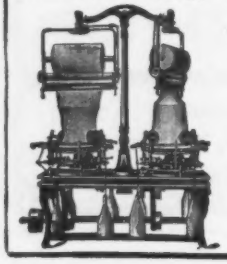
**J. L. Shoemaker & Co.**
**15 S. Sixth Street**
**PHILADELPHIA**

**We Are the Oldest Manufacturers**
IN THE WESTERN HEMISPHERE
Of Circular Spring Needle Loop-Wheel Knitting Machinery.

## TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:

Cross Question 123. How long have you been a manufacturer of knitting machines? Answer I started in this business about the middle of May, 1900.



**Tompkins Knitter**

This design was adopted in 1875.

BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLEY Was born, according to his testimony in the case above cited.

**50%**

**Better than ever from YOUR standpoint**

**Several New Features**

have been added to the "1912" Cloth Cutting, Folding and Winding Machine which *add at least 50% to its value to YOU.* It will cut your cloth—fold the edges—roll it up and give you an exact measurement of every piece of cloth going through the machine. It saves time, labor, machines and cloth.

YOU ONLY NEED ONE MACHINE where before it required two, and you get an *extra* strip from every bolt of cloth.

It cuts the corners of expense in every way and leads to *more and greater profits.*

**The Enormous Savings Will Interest You**

Mail a card for complete information and prices. When in need of special machinery write me.

**J. A. FIRSCHING** *Department A* 614 Broad St., Utica, N. Y., U. S. A.

**Eureka Fire Hose**

Cotton Mills, Woolen Mills, Knitting Mills and Factories need positive protection instantly available. Eureka Hose gives protection.

"Eureka" has the lasting quality and the capacity to resist wear and tear.

Fire Hose for every possible duty.

**Eureka Fire Hose Mfg. Co.**
NEW YORK

**STANDARD "G"**

¶ A New Type of Hosiery Machine—being the result of 22 years of actual experience in studying the needs of the trade.

¶ Your investigation desired.

¶ Can be seen running at all times.

**Standard Machine Company**
OFFICE AND SHOWROOMS
**330-340 N. 12th Street**
**Philadelphia**

**ROBT. W. GORMLY AND COMPANY, TROY, N. Y.**

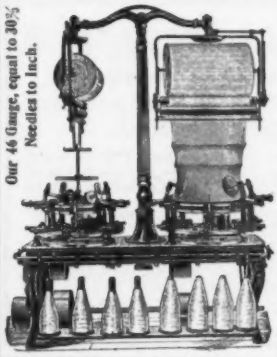
**We are the Oldest Manufacturers**

WITH

**45 Years Practical Experience**

in building Spring Need e Knitting Machines. Have succeeded in knitting the finest and coarsest work ever made on Spring Needle Knitting Machines in this country, any work from 3 to 46 gauge.

**The above machine will also produce our new patent cloth made with a staggered needle.**




**Here's a**

**Quick Drying Ink**

**Haereo Indelible Ink**

that is guaranteed not to wash out of any fabric when applied as per instructions. ¶ Neither sulphur, lime nor peroxide bleach effect it. ¶ We will leave the proof of our claims to the sample we will send on your request.

**Jones & Hardy, Inc.**
**Hudson, N. Y.**

CONTINENTAL LATCH NEEDLE CO.
NEW YORK
THE WORKMANSHIP AND QUALITY OF OUR GERMAN NEEDLES ARE UNSURPASSED OUR SCREW RIVET DOES NOT GET ROUGH OR LOOSE
LARGE STOCK OF NEEDLES FOR ALL AMERICAN AND FOREIGN KNITTING MACHINES
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HOLLOW STEAM

PLATE PRESS

For Knit or Woolen Goods

The most reliable machine of the kind on the market.

*PRESS PAPERS and FENDERS*

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Successors to

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Established 1868 NASHUA, N.H.

MACHINERY FOR

**Making Cones**

**Cop Tubes and Straight Shells**

For textile and manufacturing purposes

Knitting looms for millinery, dress and upholstery trimmings

JOHN EPPLER MACHINE WORKS

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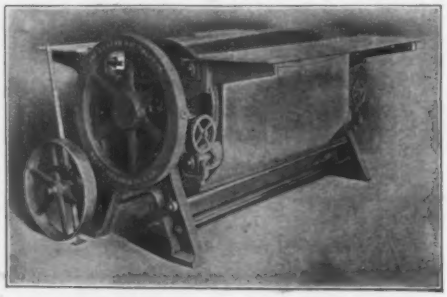

**You know that the greatest factor in earning power is a capacity that reduces the cost of production. Therefore we want you to know that**

**THE J. W. CRAW PRESS**

**excels all others in capacity.**

## Capacity and Finish

With **two** girl operators its record capacity is pressing **six hundred dozen** garments per day **without breaking a button.** With only **one** operator it is **three hundred dozen** per day.

The appearance of the garment when pressed on it is very attractive; the finish cannot be excelled; **many mills say it cannot be equalled** by any press or method of pressing.

Sizes to meet your requirements. Terms to suit your convenience. Write us for prices and terms.

**The J. W. Craw Machinery Co., South Norwalk, Conn.**

## STANDARD LATCH NEEDLES

**Have You Tried Our Special Rivet?**

**Longer Wear, Less Mending, Better Work, Fewer Seconds.**

STANDARD TRADE MARK.

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Largest Manufacturers of Machine Needles in the World.

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## EXCELSIOR SEWING MACHINE NEEDLES

**Highest Quality Crucible Wire, Smooth Eyes, Finest Temper, Hand Straightened.**

EXCELSIOR Trade Mark

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WIRE ROPE SPRINGS WIRE — SCREENS WIRE WORK SPECIALTIES

1868

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MANUFACTURERS OF

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*AND BURR BLADES OF ALL KINDS*

AMSTERDAM, N. Y.

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*By WM. WATSON*

**360 Pages; 410 Diagrams; Cloth**
**Price $2.50**

Devoted exclusively to single cloths, the construction and combination of simple and special weaves, the structure of standard cloths, the theories of colour and application of colours to textile fabrics; the designing of ordinary figured fabrics forms an important section.

Compound and special cloths are fully dealt with in "Advanced Textile Design" by the same author.

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New Free Catalog of Textile Books Sent on Request.

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JOHN C. EGLY, MGR. Manufacturers of

**Patent and Regular Latch Needles**

Needles for all makes of Knitters and Ribbers
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Special Needles made to order.

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**The Best Hosiery Needles in the market**

Manufactured by

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Established 1874. Manufacturers of all kinds of

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**AMERICAN BUILT**

**Full Fashioned Knitting MACHINES**

**and Stripers for all makes of machines**

We are rigged up to do anything from a knocking over bit to a finished Cotton frame. Also repair and change machines from the coarsest to the finest gauge.

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Highland Park, Conn.

Manufacturers of

**RAG PRESS BOARDS**

Especially Adapted to **Hot Pressing**

Also **Fender Boards**

Medals awarded at Paris and Melbourne Expositions.

**Jacquard Cards** of all Grades for Fancy Weaving. Accurately Cut to Any Size.

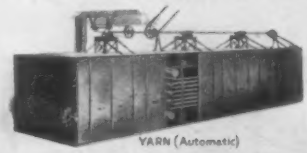
# PROCTOR DRYERS

Formerly the "CYCLONE"
Fireproof

STOCKING

COTTON AND WOOL STOCK

TRUCK YARN


YARN (Automatic)

KNIT GOODS

Proctor Dryers of various types are being successfully used on all kinds of goods, handling the material at a very small cost per pound

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## The Philadelphia Textile Machinery Co.

Philadelphia, Pennsylvania

H. G. Mayer, Charlotte, N. C.



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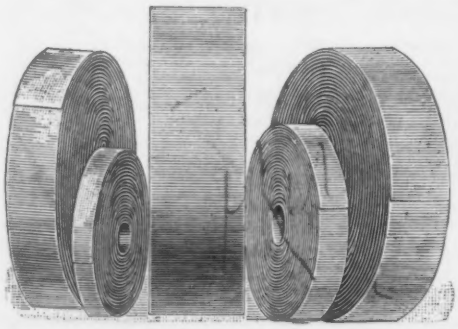
# Cocheco Belting

## You Are Bound to Win

In the ordinary method of doing business, when you buy belting or other products, you may or may not find it profitable. However, when you buy COHECO belting you are sure of the results expected, because



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Our products are guaranteed when sold, and if the belt we send you is not as good as any other—better than most—you can send it back at our expense. You see you cannot lose.

If you want to reduce to a minimum your belting expenses, effect the greatest possible conservation of power in transmission, send for literature describing our belting.

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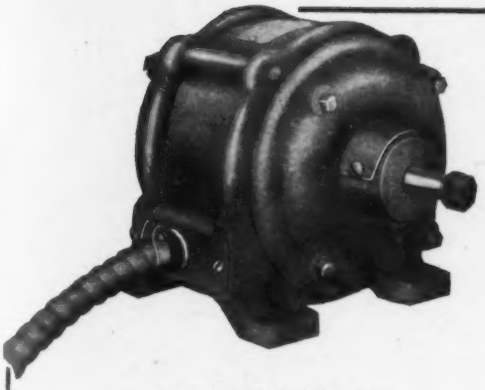

G-E ENCLOSED DESIGN "A"
Continuous Operating Loom Motor

# A Large Installation of Loom Motors in a Worsted Mill

One of the largest manufacturers in the country of fine worsted dress goods, in order to secure cleanliness in manufacturing, improvement in quality, and increase in production, has equipped 550 of his looms with G-E enclosed design "A" continuous operating loom motors.

## Tested Motors in Own Mill Selected G-E Motors

The G-E enclosed motors with waste packed bearings, liberal overload capacity and superior construction were found to answer the requirements best after a thorough trial and comprehensive test conducted at the Mill, by equipping 21 looms with motors. Totally enclosed motors mean—cleanliness in motor and goods, and protection to motor and operator.

Liberal rating of motor assures ability to take care of change in style to heavier goods without injury to motor or loss in production due to drop in speed.

## Year's Service—No Shut-Down Due to Motors

Orders have been repeatedly received from this company until 550 looms have been equipped with G-E motors. Some of these motors were installed April 1, 1914. The customer has not had one moment's shut down on a single loom from motor trouble, to date—April, 1915. This record is not unusual where G-E motors are installed.

If you are interested in "safety first" motor equipment, well insulated and built, with ample overload capacity, a copy of our Textile Bulletin No. 48016 will interest you.

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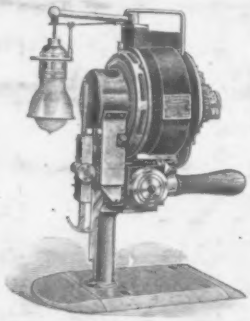
5419

# THE EASTMAN CUTTER



sells on its merits. We ask no favors for it, only an opportunity to show by free demonstration what the EASTMAN is and will do.

***Free Demonstration***

**Straight Knives** **Round Knives** **For Direct or Alternating Current**

## THE EASTMAN MACHINE CO., Buffalo, N. Y.

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THE NEW HOME OF "UNIVERSAL" MACHINES

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PRODUCES MAXIMUM RESULTS

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Makers of Soaps for Textile Mills